

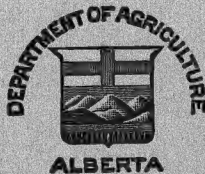
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ANNUAL REPORT
OF THE
DEPARTMENT OF AGRICULTURE
OF THE
PROVINCE OF ALBERTA
FOR THE YEAR
1940

PUBLISHED BY ORDER OF THE LEGISLATIVE ASSEMBLY



EDMONTON:
PRINTED BY A. SHNITKA, KING'S PRINTER
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TO HIS HONOUR,

J. C. BOWEN,

Lieutenant Governor of the Province of Alberta.

SIR:

I have the honour to submit herewith the Report of the Department of Agriculture for the year 1940.

I have the honour to be, Sir,

Your obedient servant,

D. M. MACMILLAN,

Minister of Agriculture.

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DEPARTMENT OF AGRICULTURE
1940

HON. D. B. MACMILLAN, *Minister of Agriculture*

Heads of Branches

J. R. Sweeney, Deputy Minister and Superintendent of Schools of Agriculture.
P. W. Johnson, Secretary to the Department.
A. A. Campbell, Acting Live Stock Commissioner.
P. R. Talbot, V.S., Provincial Veterinarian.
D. H. McCallum, Dairy Commissioner.
O. S. Longman, Field Crops Commissioner.
C. W. Traves, Poultry Commissioner.
T. Lloyd Jones, Animal Pathologist.
W. H. Wallace, Fish and Game Commissioner.
W. G. le Maistre, Provincial Apiarist.
R. M. Putnam, Director, Agricultural Extension Service.
E. B. Swindlehurst, Acting Supervisor of Agricultural Relief.
W. J. Elliott, Director of Junior Activities.
Jas. Murray, Principal, Olds School of Agriculture.
S. H. Gandier, Principal, Vermilion School of Agriculture.

REPORT OF THE DEPUTY MINISTER

THE HONOURABLE D. B. MACMILLAN,
Minister of Agriculture.

SIR:

I have the honour to submit herewith a report covering the various activities of the Department of Agriculture for the year 1940.

The year 1940 must be regarded as one of the most successful on record, and the value of agricultural production reached the enormous total of \$206,260,700.00 compared with \$186,255,315.00 in 1939. In the spring, moisture conditions were satisfactory, and while seeding was delayed, the growing season was favourable and a record crop was harvested. It was estimated that 8,667,000 acres were seeded to wheat, which gave a total production of 187,000,000 bushels, which is an average yield of 21.6 bushels per acre compared with 19.3 in 1939 and a five-year average of 14.02 bushels per acre.

While the hay crop was reported to be light in some sections of the Province, there is an increased acreage sown to hay crops, particularly legumes, and an abundance of feed is available in the Province.

Loss of crop from grasshoppers was considerably below former years, and hail and frost damage was very light.

The acreage in oats and barley did not show any increase, while there was a substantial increase in flax. It appears necessary to direct attention to the need for an increase in barley acreage to keep up with the rising hog population.

In general, the live stock industry experienced a very successful year. Prices of all classes of cattle, sheep and swine were encouraging, and market outlets were satisfactory. The most phenomenal increase occurred in swine with marketings of 1,485,382 compared with 979,898 in 1939 and 782,857 in 1938. Cattle marketings reached a total of 257,823 head, compared with 248,748 in 1939.

Alberta now leads all provinces in sheep raising with 882,600 head, and the finishing of lambs in Alberta feed-lots has become a large and profitable business.

The live stock improvement policies of the Department have been continued during the year. At the request of the Sheep Breeders' Association, a Ram Exchange Policy was introduced and conducted along the same lines as the bull and boar exchange policies.

There is a noticeable lack of interest in the raising of horses compared with a few years ago, and the number of horses exported shows a decrease from 15,426 head in 1939 to 13,651 in 1940.

Live stock feeder associations have operated successfully under The Feeder Associations Guarantee Act, and there is a demand for additional associations or an increase in the guarantee allowed under the Act. There were 16,248 cattle and 20,287 lambs fed in Alberta feed-lots under the supervision of the Department.

The Veterinary Laboratory was opened in the Terrace Building in March, and a competent animal pathologist placed in charge.

The laboratory has already demonstrated its value to the live stock industry through the diagnostic services offered and the information disseminated for the prevention and treatment of animal disease. The study of swine diseases and the problems of the fur farmers have shown the value of having a fully equipped laboratory under the direction of the Department.

There has been a marked advancement in dairying during the year. Cheese production reached an all-time record with an output of 2,700,000 lbs., and the quality of butter and cheese continues to show improvement. Evaporated milk was exported from the Alberta condensery, and the prospects are quite favourable for the expansion of dairy production during the coming year.

The poultry industry shows steady progress, and the central egg grading stations licensed by the Department have greatly improved the methods of handling eggs in the Province. The breeding stock at the Provincial Poultry Plant has been improved, and is now regarded as the best source of approved stock for distribution to flock owners.

While the number of beekeepers shows a large increase, it must be reported that 1940 was not a favourable year for honey production.

The Fish and Game Branch has continued to expand, and there is an increasing demand for more adequate protection of wild life in the Province. Enlarged hatchery facilities are required to support the policy of re-stocking lakes and streams, and it would greatly assist in developing a sound fish and game conservation policy if a qualified biologist were added to the staff of the Department.

I have to report the closing of the Experimental Fur Farm in November, and the disposal of the breeding stock. The need for economy during the war period made it necessary to take this action, and the fur farmers realize that while the fur farm at Oliver was serving a useful purpose, it would be advisable to close it for the duration of the war rather than curtail the field services of the Fish and Game Branch.

The Schools of Agriculture at Olds and Vermilion continue to be popular educational institutions for rural boys and girls, and are attracting increased attention as centres for short course and agricultural conferences. The farms, operated in connection with the schools, are providing live stock and materials for instructional purposes, and much live stock of improved blood lines has been distributed at reasonable prices.

The Provincial Horticultural Station at Brooks is becoming more appreciated each year. The hardy varieties distributed by the station are proving to be the means of encouraging farm orchards and stimulating an interest in tree planting and farm home beautification. Additional funds are needed to develop the Horticultural Station and increase its usefulness to the farmers of the Province.

The Agricultural Extension Branch has greatly improved the organization of all extension activities of the Department, and has been the means of assisting in the dissemination of much needed agricultural information. The requests for information on a wide range of subjects are increasing so rapidly that an increased appropriation is urgently needed for printed matter, radio addresses and

rural short courses and demonstrations. Extra assistance is needed for women's work and the preparation of statistical information.

It has been the policy of the Department to continue the junior activities during the war period. This places a heavy strain on the reduced staff and the already overworked District Agriculturists. However, the Junior Club programme is carried on for the benefit of young people, and with the assistance of local community leaders it is expected that club work can be continued.

In the general administration of the various activities and improvement policies of the Department, I am obliged to depend on the Agricultural Extension Branch and the District Agriculturists stationed at various centres in the Province. It would be impossible for the various branches of the Department to function economically without the contacts of the field officers and the co-ordinating benefit of the Extension Branch. The staff of the agricultural schools supplement the field work of the Department, and the growing demands for meetings and demonstrations indicate the need for assisting farmers with the problems which confront them under war conditions.

The Department is co-operating with the Federal Government in the operation of the Youth Training schemes, and particular attention is given to the mechanical short courses. These courses are helpful to young farmers, who are taught how to repair farm implements, and are given instruction in farm engineering problems.

During the year the following staff changes were made:

Dr. T. L. Jones, M.Sc., V.S., of the Ontario Veterinary College, Guelph, was appointed Animal Pathologist in charge of the newly established Veterinary Laboratory.

Mr. Peter Wyllie, B.Sc., formerly District Agriculturist at Thorsby, was appointed Acting Sheep and Swine Promoter during the absence of Mr. G. S. Black, who joined the military forces.

Mr. T. W. Hall, M.Sc., was appointed Acting District Agriculturist at Red Deer, during the absence of F. H. Newcombe, who enlisted for active service.

Mr. E. B. Swindlehurst, B.Sc., was appointed Acting Supervisor of Land Settlement, replacing J. Ficht, who is on active service.

Mr. J. E. Birdsall, M.Sc., was appointed District Agriculturist, replacing Mr. Wyllie at Thorsby.

Mr. W. H. T. Mead was appointed District Agriculturist at Camrose, and Mr. J. E. Price was transferred to the School of Agriculture at Olds as Instructor in Animal Husbandry and Dean of Residence.

Mr. J. Eaglesham, B.Sc., was appointed Supervisor of Pest Control Work in the Field Crops Branch.

Mr. E. H. Buckingham was granted leave of absence to join the military forces.

Miss Edna Dakin resigned to be married, and was replaced in the women's work by Miss Vera Richards, B.Sc. in Household Economics.

Mr. R. P. Dixon, B.Sc., joined the Dairy Branch as Supervisor of Herd Testing, and R. H. Powley, B.S.A., joined the same branch as Creamery Instructor.

Mr. L. M. Silcox, of the Dairy Branch, was given leave of absence to join the military forces.

The enlarged services offered by the Department and the changes due to enlistments have added greatly to the work of the present staff, and I wish to acknowledge their co-operation in carrying on under a heavy strain.

The heads of branches, school principals, farm managers and District Agriculturists have submitted separate and detailed reports, which are attached herewith.

All of which is respectfully submitted.

J. R. SWEENEY,
Deputy Minister.

REPORT OF THE FIELD CROPS COMMISSIONER

(O. S. LONGMAN)

The estimated crop production for Alberta for the year 1940 exceeded that of 1939, and is the highest in the history of the Province. While spring weather delayed seeding in a large area of the Province, the growing season was satisfactory, with fairly uniform conditions through the Province. Over a considerable portion of the central section of the Province, threshing was delayed due to adverse weather conditions. Losses from hail were comparatively light and damage from frost, while severe in local areas, was not general.

The problem of securing elevator space which appeared in 1939 was accentuated in 1940. It became necessary for the Canadian Wheat Board to impose, for the first time, a quota system upon farmer deliverers.

The following table shows the estimate of field crops in Alberta in the year 1940, with comparative figures for 1939:

Crop	Area 1940 (Acres)	Yield per Acre (Bus.)	Total Production (Acres)	Area 1939 (Acres)	Yield per Acre (Bus.)	Total Production (Bus.)
Spring Wheat	8,667,000	21.6	187,000 00	8,379,000	19.3	161,400,000
Oats	2,645,000	38.9	103,000 000	2,706,000	31.4	85,000,000
Barley	1,115,000	28.7	32,000,000	1,114,000	24.2	27,000,000
Fall Rye	100,200	16.0	1,600,000	126,600	12.6	1,600,000
Spring Rye	76,800	18.2	1,400,000	62,300	12.8	800,000
All Rye	177,000	16.9	3,000,000	188,900	12.7	2,400,000
Peas	1,200	19.2	23,000	900	21.0	19,000
Beans	600	18.7	10,000	800	18.0	14,000
Mixed Grain	28,900	27.7	800,000	23,200	24.0	557,000
Flaxseed	42,000	10.1	425,000	31,000	8.9	275,000
Potatoes	25,500	(Cwt.) 73.0	1,862,000	25,400	(Cwt.) 48.0	1,219,000
Turnips	2,800	95.0	266,000	2,700	100.0	270,000
Hay and Clover	398,700	(Tons) 1.60	638,000	392,200	(Tons) 1.45	569,000
Alfalfa	108,700	2.40	261,000	103,300	2.00	207,000
Fodder Corn	2,400	4.60	11,000	3,400	4.00	14,000
Grain Hay	1,000,000	1.80	1,800,000	950,000	1.50	1,425,000
Sugar Beets	23,900	14.00	334,000	21,600	12.13	262,000

The acreage of farm lands sown to hay and pasture crops continued to increase in 1940. A substantial increase in legumes and grass crops was reported. This interest in seed production of forage crop is in evidence, particularly with respect to Alfalfa, Brome Grass, Altaswede Clover, Alsike Clover, and Crested Wheat Grass. Prices for Brome and Altaswede Clover remained firm, while there was a decline in value of other seed crops.

VARIETAL ZONATION COMMITTEE

This Committee is charged with determining the varieties of cereals suitable to Alberta, and the sections of the Province to which each variety is most adapted. The Committee is composed of representatives of the Dominion and Provincial Departments of Agriculture and the University, with Dean R. Newton as Chairman.

The recent report of this Committee recommends the following cereal varieties for the respective zones (the varieties are listed in alphabetical order, not according to merit or desirability):

Spring Wheat—Zone 1, Canus and Marquis; Zone 2, Canus, Marquis, Red Bobs and Thatcher; Zone 3, Red Bobs, Thatcher (Marquis in specially favoured areas); Zone 4, Red Bobs and Thatcher (Marquis in specially favoured sections of 4B).
Winter Wheat—Kharkov in all areas suited to the production of this crop.

Oats—Zone 1, Banner and Victory; Zone 2, Banner, Legacy and Victory, Zone 3, Banner, Eagle, Legacy and Victory; Zone 4, Banner, Legacy and Victory.
 Feed Barley—Zones 1 and 2, Newal and Trebi.; Zones 3 and 4, Newal, Olli and Trebi.
 Malting Barley—O.A.C. 21 in all zones; Olli in Zones 3 and 4.
 Flax—Zone 1, Bison; Zone 2, Bison, Redwing; Zones 3 and 4, Redwing.
 NOTE.—Zone 4 includes 4A and 4B.

CROP IMPROVEMENT ASSOCIATION

This Association is composed of agencies operating within the Province that are vitally interested in the production and distribution of Registered and Certified seed to the farmer. The results of the first year's activities have been most satisfactory and encouraging. The Association has provided facilities whereby any farmer in the Province can readily obtain pure seed by applying direct to his local elevator agent.

WEED CONTROL

The control of noxious weeds is primarily the responsibility of the farmer, and it is he who suffers the greatest direct loss. Most of the programmes with regard to noxious weed control have been established on the basis of education and legislation; first to give self-help through education and when this method failed, to insist by legislation. In spite of extensive efforts by various agencies, Governmental as well as private, weed infestation is growing in intensity. This may be due to neglect on the part of the farmer; his inability, or his present economic condition. The fact remains that an increasing proportion of land now in cultivation is losing its productivity due to the encroachment of noxious weeds. Such land has no appeal to the prospective farmer, particularly if he has limited or no capital. Land so infested has to be rehabilitated, and must be rehabilitated in the interests of consolidating our community life.

Alberta is now entering upon or confronted with the third phase of weed control. It is the problem of dealing with a chronic situation, where the infestation of weeds has developed to such an extent that the farmer is unable to rehabilitate the land out of his own resources. In other words, the weed problem must be faced as a problem of agricultural land conservation and rehabilitation.

To this end, there is need of the following:

(1) A closer co-ordination of experimental and research organizations with administrative bodies within the Province. The Field Crops Branch is essentially an administrative body. It urgently requires a more clearly defined experimental and research programme upon which to base its educational and administrative programme, and to verify the merits of apparently effective farm practices with respect to weed control.

(2) A closer co-ordination of effort and purpose by those responsible for the administration of public lands, local improvement districts, municipalities and the Department of Agriculture. In the past the major burden of weed control has been placed upon municipal authorities. These agencies have, for the most part, made serious attempts, but their continuance to shoulder this responsibility may terminate, unless they are supported by other agencies who are concerned with the proper and efficient utilization of land.

(3) A policy for effective administration and rehabilitation of land that has lost its agricultural value through weed infestation or other causes.

These problems are urgent, and are all the more vital due to possible post-war agricultural adjustments which may confront the Province.

Our most urgent weed problem is the spread of a number of aggressive and persistent perennial species which have been mentioned in recent reports. Though infestations of Hoary Cress are found chiefly in the south, this weed is widespread. The same can be said of Field Bindweed, while Leafy Spurge and Russian Knapweed are reported only from widely separated districts.

Annual weeds cause heavy, direct losses each year through the reduction of crop yields. The 1940 season was favourable to the growth of this class of weed, and resulted in the exaction of heavier than normal dockages on account of weed seeds in grain delivered to elevators.

Under our weed control programme, local administrative bodies are responsible for the enforcement of The Noxious Weeds Act. In discharge of this duty, 321 rural municipal district weed inspectors were appointed in 1940. In addition, the Field Crops Branch employed 28 inspectors to act in improvement districts. Salaries for this group were provided from an appropriation in the amount of \$4,971.87, made from the districts concerned, and \$3,267.96 provided by special warrant for this purpose.

The Field Crops Branch is responsible for organizing and co-ordinating the work of the local units. Seven field supervisors were appointed with headquarters at Lethbridge, Calgary, Ponoka, Wainwright, St. Paul, Clyde and Grande Prairie.

The problem of securing the adoption of a uniform weed control policy throughout the Province is a difficult one. Much remains to be done in this regard. The effort of many municipalities is excellent. In general, those that spend the most money conduct a considered and efficient weed control policy. Where only a few dollars are spent, it is wasted on an aimless programme. In the districts spending the least, direct losses to farmers due to weeds are increasing annually. On the other hand, it has been amply demonstrated that a high degree of weed control can be secured where there is a will to do the work.

The problem of controlling weeds on Crown lands and especially on lake shores received attention during the year. The Department of Lands and Mines assisted in providing for the cost of control of weeds on certain lands under its jurisdiction. It should be pointed out, however, that while a start has been made, a great deal must yet be done before it can be said that adequate control is effected.

Valuable data relating to weed control was collected during the year. This will be made available to farmers. In addition a number of short courses were held throughout the Province for the purpose of giving special instruction to active and prospective weed inspectors as well as municipal officials.

FORAGE CROP POLICY

The promotion of forage crop production was continued under the Provincial Forage Crop Seed Distribution Policy. This work is increasing year by year. Soil exhaustion and the reduction of its fibre which has increased erosion by wind and water, together with the problem of controlling weeds, all tend to direct the attention of farmers towards forage crops.

In the past four years the Dominion Government has assisted in financing this policy. Since this undertaking is completed, however, it might be appropriate to summarize in this report the work done under the policy since its inception in 1937, as well as to review the work done in 1940.

In 1940, the policy was extended to include 33 new municipal units, 22 of which were improvement districts. In all, a total of 72 municipalities and 28 improvement districts have participated under the policy.

The kinds and quantities of seed distributed in 1940 and in the period 1937-40 are as follows:

	1940 lbs.	1937-40 lbs.
Alfalfa	59,118	187,973
Crested Wheat Grass	27,807	82,391
Brome	61,988	185,581
Sweet Clover	51,720	167,947
Red Clover	5,876	20,647
Alsike Clover	4,350	16,679
Timothy	11,537	44,844
Red Fescue		50
Red Top	450	455
Slender Wheat Grass		100
Totals	222,238 lbs.	706,667 lbs.

To date, nearly 12,000 farmers have secured seed under the policy at half-price. The total value of the seed distributed is in excess of \$92,000. Moreover, sufficient funds are held in trust by various districts participating, to provide for the distribution of additional seed valued at \$42,790. So far only 10 districts have completed their forage crop seed distribution programme.

In addition to the policy providing for the distribution of seed at half-price, the Branch has assisted municipal districts to secure forage seeds at lowest prices for resale to farmers at cost. In other cases, the producers and those wishing to purchase this class of seed were brought into direct contact.

Wherever conditions are suitable for its production, Alfalfa is increasing in popularity as a forage crop. Brome is the most popular grass and, although it has a definite place in mixtures since it will increase yields in the early years of seeding, the demand for Slender Wheat Grass is negligible. The production of Crested Wheat Grass is becoming more restricted each year in those parts of the Province where rainfall is not sufficient to produce satisfactory crops of Alfalfa and Brome.

Altaswede Red Clover has proven excellent on wooded soil types, and Alsike is used to advantage in mixtures where moisture is plentiful or where occasional flooding prohibits the use of Alfalfa.

The utilization of forage crop mixtures for hay and pasture is recommended by the Field Crops Branch.

ALBERTA SEED GROWERS' ASSOCIATION

This Association is comprised of growers of Registered and Certified Seed, and is mainly concerned with the production and marketing of high quality seed of recommended varieties. In this way they make a real contribution to agriculture as they help to maintain the high standards for our commercial grain. This Association co-operates closely with the Field Crops Branch because of the common interest in promoting the distribution of high quality seed.

This year they have become members of the Alberta Crop Improvement Association, and under this arrangement every elevator agent in the Province becomes an authorized salesman for the members. This plan has worked out very successfully, as evidenced by the increased sales of seed.

The officers of the Alberta Seed Growers' Association for 1940 were: H. P. Wright, Airdrie, President; T. H. Howes, Millet, Vice-President; A. T. Sinclair, Edmonton, Secretary. Directors: O. S. Longman, Edmonton; A. M. Smith, Wembley; R. Mueller, Ghost Pine Creek; W. L. Ingraham, Lacombe; C. C. Patching, Lethbridge.

Production and Sale of Registered and Certified Seed.

Good seed is fundamental in maintaining the high quality of our grain for export trade. The seed growers of this Province, therefore, play an important role in keeping the quality of our commercial grain to a high standard.

In this Province, we have approximately 700 producers of Registered and Certified seed grain, and they are well distributed so that most farmers are within easy access to a good source of seed.

Alberta is well adapted to seed growing because of a wide range in variability of soil and climatic conditions suited to the different kinds and varieties of grain. The Province has been divided into four zones for the purpose of making varietal recommendation, and the farmers are encouraged to grow the varieties suitable for their district.

The amount of seed produced usually exceeds the requirements of the domestic market, but because of the high quality we have been able to export a considerable part of the surplus. The export trade is capable of greater expansion, so that seed growing should become an increasingly important industry.

Through the facilities of the Alberta Crop Improvement Association and the Alberta Seed Growers' Association, the following quantities of seed were distributed for the 1939-40 season:

Wheat—	Bushels
Bulk Carlots (30)	40,898
Sacked and Sealed	29,002
Total	69,900
Oats—	
Bulk Carlots (26)	53,505
Sacked and Sealed	7,320
Total	60,825
Barley—	
Sacked and Sealed	4,100
Flax—	
Sacked and Sealed	1,672
Grand Total	136,497

FOUNDATION STOCK SEED POTATOES

A new departure has been undertaken during 1940 in regard to seed potato production. This year the Field Crops Branch is promoting the growing of foundation stock seed potatoes. Prior to this year, potato growers have been able to purchase only certified seed which, although of high quality, may contain an allowed percentage of diseased plants. These plants may multiply and reduce the yield and quality of the subsequent crops. It was felt that higher quality seed than certified should be available for growers specializing in seed production.

The Regulations as defined by the Dominion Seed Potato Certification Service are stricter for foundation seed than for certified. The sets must be planted by tuber units in an isolated plot and the field carefully rogued, as the tolerance for second inspection is not more than 0.1% diseased plants.

To encourage growers to take this extra precaution in the growing of foundation seed, the Field Crops Branch has offered a bonus for all foundation seed produced and sold to certified potato growers. In order to receive this bonus, growers must comply with additional Regulations as defined by the Department of Agriculture.

This year twelve experienced growers of certified seed were selected and arrangements made for them to plant carefully selected seed by the tuber unit method. The seed grown from this stock will be further tested by tuber indexing, and in this way stocks meeting the requirements for foundation seed will be produced.

It is hoped that this spring a small quantity of seed of such stocks will be available to growers of certified seed potatoes.

The Alberta Certified Seed Potato Growers' Association.

Growers of certified seed potatoes are eligible for membership in this organization. They are mainly concerned with the production and marketing of high quality seed. They have a common interest with the Field Crops Branch in promoting the use of certified seed, and thus helping to control potato disease and increase acreage yields.

The annual meeting of the Association was held at Lacombe and the following officers appointed: L. Silver, Perryvale, President; W. L. Ingraham, Lacombe, Vice-President; A. T. Sinclair, Edmonton, Secretary; Directors: F. T. Rickett, R.R. No. 4, S. Edmonton; F. Ash, R.R. No. 4, S. Edmonton; T. H. Howes, Millet; T. Molineaux, Edmonton.

Southern Alberta Potato Growers' Association.

During the year the Southern Alberta Potato Growers' Association was formed. This Association came into being largely for the purpose of combatting potato diseases which have become prevalent in the area. Also, if possible, to improve the marketing of their products.

The Association appointed the following officials: President, A. Morton, Lethbridge; Secretary, C. Walkof; Directors: K. Sugimoto, J. T. Hadlington, J. Nishi, C. R. Wilmot, J. B. Mott, M. Raskovich, F. R. Bates.

SEED SHOWS

Three district seed shows were held at Lethbridge, Calgary and Edmonton in 1940. A provincial corn show was held at Lethbridge and a Provincial seed show at Edmonton in conjunction with the district fairs.

The number of entries at Lethbridge and Calgary were considerably below last year's, while the entries at Edmonton were about the same. The following give the numbers of entries at each fair with the 1939 figures shown for comparison:

	1939	1940
Edmonton ..	242	244
Lethbridge ..	151	81
Calgary ..	128	61
Total ..	521	386

Seed shows are an aid to crop improvement work by creating greater interest in good seed and assisting in its sale and distribution. They also bring to the attention of farmers, new varieties that may have outstanding merit. The display of high quality seed sets a standard for farmers to attain, and consequently leads to improved farming methods.

This year the Alberta Department of Agriculture has again assisted seed growers to show at the International Grain and Hay Show, Chicago, by assembling exhibits and paying shipping costs. Prize money was duplicated for winning exhibits and a special award of \$25.00 was paid in the case of first prizes, which amount was increased to \$50.00 for championships in wheat, oats and barley.

Alberta seed growers made an excellent showing at the International Grain and Hay Show, Chicago. Three world championships were won: in wheat, Francis Lloyd Rigby, Wembley; in oats, Paul F. Pawlowski, Vilna; and in field beans, John Hamilton, Lethbridge. Three reserve championships were won: barley, Eli Lastiwka, Willingdon; field peas, Jas. A. Horlihy, Edmonton; and beans, John Hamilton, Lethbridge. In addition to this, Alberta growers took 25 of the first 32 awards in wheat; 15 of the first 15 awards in oats; 5 of the first 6 places in barley; as well as important winnings in flax, rye, peas, beans, soy beans, red clover, sweet clover and alfalfa.

The winning of so many prizes at the International Grain and Hay Show is important at this time when we are endeavouring to expand our export market.

The attention of seed importers and buyers will be focussed on Alberta, where seed of such high quality and good appearance has won high recognition.

PRODUCTION AND SALE OF FORAGE CROP SEED

The increased interest being shown in forage crops in recent years has given a considerable impetus to forage crop seed production, since it provides an expanding domestic market. The export market has continued good, so that no surplus has accumulated during 1939 and 1940.

There is every indication that a marked increase in forage crop seed production, particularly the legumes, will develop in the gray wooded soils area. This should prove a real benefit to the farmers in this region since it provides them with a cash crop that will work well in any planned crop rotation.

The growing of grass seed such as Brome and Crested Wheat is expanding more in the drier plains area, which is also advantageous because fibre is needed for the soil in this region.

The weather was particularly favourable for forage crop seed production this past season, and exceptionally good yields were obtained. With the increased acreage sown for seed and better yields obtained this year, it is estimated the total seed production of legumes and grasses amounted to over 5½ million pounds as compared with 3¼ million for last year.

The following figures give the estimated production of seed for some of the more important forage crops:

	1939	1940
Alfalfa	210,000	600,000
Sweet Clover	545,000	
Red Clover	60,000	150,000
Alsike	120,000	200,000
Timothy	250,000	1,000,000
Crested Wheat	655,000	300,000
Brome	1,300,000	2,000,000
	<u>3,140,000</u>	<u>4,250,000</u>

It is interesting to note the increase in acreage seeded to registered or certified forage crops for seed. The following figures give a comparison for the past two years for some of the more important legumes and grasses:

Kind	Acres Inspected, 1940	Acres Inspected, 1939
Brome Grass	6,370	3,947
Crested Wheat Grass	443	765
Creeping Red Fescue	214	78
Sweet Clover	177	94
Alsike	26 ¹ / ₄	
Alfalfa	790	591

JUNIOR GRAIN CLUBS

Excellent work has again been accomplished by Junior Grain Clubs in introducing and multiplying pure seed of suitable varieties. Eighty-five districts were served this year throughout the Province. Club members have demonstrated the superior value of registered and certified seed over common seed ordinarily used on hundreds of farms. These young farmers have learned the technique of successfully handling a seed plot, and have demonstrated a practicable method of providing superior seed for use for the farming communities. Where older farmers, handicapped by lack of technical knowledge were reluctant in using registered seed, junior farmers with their natural enthusiasm and curiosity have made remarkable progress.

In keeping with a desire to operate no more clubs than can be adequately supervised, only two clubs more were operated this year than in 1939. Several new features added to the programme this year yielded pleasing results and increased interest in the work. Each member when joining a club received seed as follows: wheat, 4 bushels; oats, bushels; barley, 6 bushels. This seed is multiplied under the direction of Departmental supervisors. It is amazing how rapidly seed grain may be increased. Crop reports from the individual club members reveal that fully 160,000 bushels of superior seed were produced this year from their 3-acre, specially cared for seed plots, while millions of bushels were produced from larger fields, descending directly from the original registered seed acquired by the members. It is estimated that each year well over half a million bushels of pure-to-variety seed is used as a result of the operation of Junior Grain Clubs. The general desire of farmers in many districts to change from unsuitable varieties to some better adapted variety has been met in a most satisfactory manner through the operation of these clubs.

Grain clubs and memberships in 1940 in the various projects were as follows:

	No. of Clubs	No. of Members
Wheat	78	1,417
Barley	8	121
Oat	18	256
Flax	2	33
Potatoes	1	13
Totals	<u>107</u>	<u>1,840</u>

There were 107 standing crop competitions and 85 local seed fairs and grain judging competitions held. They were keenly contested, and splendid results were obtained.

Fifty-two midsummer field day meetings were held throughout the Province, where instruction was given in the care of seed plots and other phases of grain club work. Many adult farmers attended these field days. It is estimated that the total attendance at all field days was approximately 3,100.

Grain clubs were sponsored again this year by the following organizations: Wheat Clubs, Alberta Wheat Pool; Oat Clubs, United Grain Growers Limited; Barley Clubs, Canada Malting Company; Flax Clubs, Alberta Linseed Oil Company. The support given by these organizations in the matter of paying for part of the cost of the seed and providing prizes and free trips for the member obtaining the highest score for his season's work, has been of great value in stimulating effort and maintaining interest in the work. Over 100 club members were awarded free trips to district seed fairs, with agricultural short courses held at Calgary and Edmonton. The National Grain Judging Competition was held again in 1941, after having been omitted in 1939. A free trip was provided a team of two members from the same club to Toronto, where the competition was held. Side trips were arranged to Ottawa, Hamilton, Niagara Falls and other points of interest. This province was represented by a team from the Nanton Wheat Club—Mr. Gerald P. Loree and Mr. Frank Kinney. The Alberta team won third award in the National Competition.

Junior club members are each year coming more and more to the fore in awards at the various seed fairs and grain shows.

At the Alberta Provincial Seed Fair, Lloyd Rigby of Wembley won the highest honours with oats in the Commercial Division. Nick Dushenski of the Willingdon Club won the special for the best exhibit of malting barley. The special for the best sample of wheat in the Commercial Division was won by a recent club member, Wm. Justyn Rigby. The Andrew Junior Club won the special for the Seed Growers' Association, securing the highest aggregate score at the show. Junior club members won 41% of the awards in the Provincial Competition. Lloyd Rigby won the award for the best exhibit of wheat shown by a Junior Grain Club member, Albert Allsop won in oats, while Nick Dushenski of Willingdon won the award for the best sample of barley shown by a club member.

At the International Grain and Hay Show, Chicago, for the third time in succession, Alberta Junior Club members won world championships in both wheat and oats. Mr. Francis Lloyd Rigby, Wembley, was crowned World's Wheat King for the third time in succession. For this outstanding achievement he was granted a scholarship from the Provincial Department of Agriculture for a two years' course in Agriculture at the University of Alberta. Mr. Paul Francis Pawlowski of Vilna was crowned World's Oat King, while W. J. Lastiwka of Willingdon, Rae Lunn of Waskatenau, and Wm. Skladan of Andrew were awarded second, third and fourth in oats. Elie Lastiwka of Willingdon won first and reserve championship in barley. These top winnings were remarkably well supported by many other awards to their fellow members at this great show. Out of the total Alberta winnings of 50 awards in wheat, oats and barley, 40 of them were shown by Junior Grain Club members.

PORTABLE SEED CLEANERS

Under the Dominion-Provincial Policy we are assisting in the establishment of portable seed cleaners. Organizations operating such cleaners have been established at Grande Prairie, Sangudo, South Edmonton, Fairview, Lacombe, Vegreville, Camrose, Gage, Innisfail, St. Paul, Barrhead, Berwyn and Warburg.

Under the contract entered into, the local association agrees to pay one-third of the cost of the machine out of the earnings period from the use of the equipment. Of the foregoing, Grande Prairie, Sangudo, South Edmonton, Lacombe, Vegreville and Fairview have completed their contracts with the Department, and are now operating equipment without any direction from the Department, other than providing information as to the use which is being made of the equipment.

GENERAL PEST CONTROL

The general climatic characteristics of Alberta have tended to concentrate most major insect control problems in the southern portion of the Province. Even there, farmers' pest problems to date have been comparatively few.

It must now be recognized that the situation has altered considerably, and from now on the farmer must consider insect pests as one of the limiting factors in crop production. Spasmodic outbreaks of grasshoppers and cutworms alone have caused him concern, but the situation has recently been aggravated by the appearance in menacing numbers of several other destructive pests. The problem of insect control has changed from a spasmodic one to a continuous one. We have now four large classes of destructive crop parasites:

1. Those which annually cause some damage in specialized communities, such as wireworms.
2. Those such as grasshoppers which, lacking control measures, increase gradually to outbreak proportions with a succession of favourable seasons and are reduced with a series of unfavourable ones.
3. Those like cutworms which multiply so rapidly even in one favourable season as to be very destructive, and whose cycle may endure only one year.
4. Insects such as Say's Grain Bugs and the Western Wheat Stem Sawfly, which appear to be well adapted to withstand the rigors of our climate and are persistently increasing in numbers and in geographic distribution with rather alarming rapidity.

The task of controlling all these pests, while still continuing to produce crops, is a difficult one, and the time is at hand for the farm to recognize this fact. Since of all these insects, grasshoppers alone can be partially controlled by poisoning, the farmer must now become the chief agent in insect control with cultural technique as his defensive weapon.

The farmer's insect control problems now resolve themselves into a single complex one of evolving and instituting a combination of cultural practices which, while favourable to economical crop production, will be detrimental to as many of his insect enemies as is possible. From now on if control is to be achieved the insect hazard will have to be classed with such factors as soil and moisture conservation and weed control, and recognized to be of sufficient

moment to warrant a change in farm practices. It is fortunate that research has provided us with methods of reducing populations of most destructive pests culturally without unduly increasing production costs. It remains for this information to be disseminated through extension programmes and for the farmer to adjust his practices in accordance with this knowledge as will best fit his individual circumstances.

Wireworms.

As usual, wireworms were present in wheat fields throughout most of the Province. Considerable loss was experienced in a few localities, particularly in the Peace River and in Southern Alberta. Elsewhere losses were not serious.

Cutworms.

Damage from cutworms was negligible throughout the Province. The presence of Red Backed Cutworms was reported from the Peace River district only. The only reports of damage from Pale Western Cutworms were restricted to a few farms in the vicinity of Bow Island. Small numbers of larvae were present in quite a large number of fields, but with satisfactory moisture conditions, rapid growth of crops overcame any slight damage the worms could do.

Quite a large area of Alberta experienced a lack of rainfall during much of the period of cutworm activity. This will probably result in an increase in the numbers of Pale Western Cutworms in 1941. Over the area enclosed by a line drawn through Alsask, Lure, Morrin, Calgary, Magrath, Orion and Hilda, the infestation may become severe and do considerable damage unless control measures are taken. All of the area east of a line from Lloydminster through Cochrane to Cardston is expected to have at least a moderate infestation.

Wheat Stem Sawfly.

The wheat stem sawfly was exceedingly abundant during the past season. The infestation covered a wide area of Eastern Alberta extending from the Saskatchewan and Montana borders well up and across to the central part of the Province. The fact that this insect covers all that portion of the Province in which farmers have found it necessary to strip-farm for soil erosion control adds to the seriousness of this menace, since it causes greater damage to narrow strips of grain than to crops grown in large plots. The area affected by the sawfly was extended considerably during the past year, and the intensity of infestation was also noticeably increased in most districts.

The lack of wind and the greater number of clear, warm days during the flight period, June 10th to July 10th, permitted an extensive dispersal of the insects from their point of emergence. This resulted in a more general infestation of large fields, while ordinarily only the margins are affected.

Damage caused by wheat stem sawfly was much greater in 1940 than for many years past. Most of the wheat stems cut by the sawfly were knocked flat on the ground by heavy rains and wind. This grain sprouted and practically none of it could be recovered. Fields left for combining suffered particularly heavy losses.

Say's Grain Bug.

This pest caused severe damage to wheat, particularly in late summer, by sucking the juice from the kernels. Its presence was

observed over most of Alberta south of Calgary. Its distribution appears to be associated with the growth of Russian Thistle and the use of trash cover summerfallow. Several new localities showed a marked increase in numbers present. While general areas showing severe infestation of this insect were smaller, there were more of them in 1940, and losses ran as high in such areas as 20% of the estimated yield of wheat.

Psyllids.

This insect has become a menace to potato and tomato production in local areas. The potato and tomato psyllids were not numerous in Alberta greenhouses in the early spring, but they were found in the field by the middle of June. There were no areas of severe infestation in 1940, but some psyllids were to be found in practically every potato field inspected in Southern Alberta during the past summer. Loss from this pest can be controlled by proper inspection and supervision of greenhouses. Most infestation has been within or adjacent to the cities of Calgary, Lethbridge and Medicine Hat.

Colorado Potato Beetle.

This insect was very abundant throughout Alberta as far north as Edmonton. It is rarely seen north of Olds, and it caused considerable damage through defoliation before being brought under control. This was true particularly in northern districts, where it had been a comparative stranger. The control of this pest can be effected by the use of proper insecticides on all potato crops grown for domestic or commercial purposes.

Forest Tent Caterpillar.

A severe outbreak of this insect occurred over practically all of the area from Edmonton north to Fort St. John, B.C. Partial to complete defoliation of native trees and shrubs occurred throughout this territory. Observers considered it the most severe outbreak in the past twelve years. It is expected that the outbreak will reach its peak in 1941, if it did not do so in 1940. After that it will rapidly decline, as the duration of ten caterpillar outbreaks seldom exceed three years.

Rodents.

Over much of the Province the gopher population appeared to be lighter than in 1939, while other districts complained of some damage to grain and garden crops. Many municipal districts continued their assistance to farmers by supplying poison, but numerous complaints are received from farmers in improvement districts where assistance in obtaining poison is not provided.

From a 1940 survey of 51 rural municipalities located within gopher infested areas of the Province, it was learned that in at least 26 of these units gopher control was a serious problem. In most municipalities assistance was given to ratepayers in controlling this pest. This assistance usually consisted of supplying poison at reduced prices. The cost of this assistance in 1940 in one municipal district reached \$600.00, while the total cost to 31 municipal districts reported as giving assistance amounted to \$6,467.46. It would appear that the claims of farmers residing in improvement districts deserve recognition.

Potato Diseases.

The most serious disease affecting potato crops during the past season was Bacterial Ring Rot. A survey of the commercial potato growing district of Lethbridge showed this disease to have spread to four new townships. The number of infested farms increased from 40 in 1939 to 71 in 1940. Whereas in 1939 approximately 180 acres of diseased potatoes were found, this acreage has increased to approximately 674, as shown by the most recent survey. This is an increase of nearly 375% in one season. The rapidity with which this disease spreads and the difficulty of producing any marketable tubers on infected farms, makes it necessary to institute control measures.

The organized potato growers in the Province are much concerned over the presence of this disease, and have urged that adequate measures be taken to control the infestation of this disease.

An effort is being made to have Southern Alberta growers use pure seed, while at the same time growers in disease-free districts are being encouraged to produce seed stocks suitable for shipment into the diseased area. An educational programme has been conducted to inform growers of ways and means of controlling this disease, and urging the necessity for immediate action.

Net necrosis was not serious in potato fields last season. While occasional tubers showing symptoms of this ailment could be found, in the majority of fields in the Lethbridge to Medicine Hat section losses were negligible.

The common fungus and virus diseases were in evidence throughout the Province, but few reports of serious damage were received.

A Ten-year Grasshopper Plague.

The most destructive and costly grasshopper plague in the history of Alberta, extending over a period of ten years has now apparently completed its course. During this period the total annual areas subject to infestation and requiring supervision by this Branch has exceeded 291,000 square miles, or in comparison, an area equal to 16 times the present crop area of the Province.

In 1931 several species of grasshoppers, which are native to Southern Alberta, multiplied rapidly to plague proportions over an area of approximately 1,600 square miles. By the summer of 1933, the plague area had increased to nearly 25,000 square miles and by 1939 the area infested reached a peak of 60,000 (square miles), extending as far into Central Alberta as Lloydminster and Camrose.

Generally speaking, the severity of the plague increased simultaneously with its geographic advance into 1939, when the intensity of infestation fell off considerably. In 1940 a substantial decline in both the area affected and the severity of outbreak occurred, and it would appear that this cycle has been practically completed. When another cycle will commence and what proportions it will attain will depend upon ensuing climatic conditions and the effort made to forecast and control promptly any ominous increase in grasshopper population in localized areas.

During the period referred to, the evolution of grasshopper control technique has contributed to the efficiency, economy and facility with which crops can be protected from this pest. The use of molasses, previously incorporated, mainly to enhance moisture retention in the bait has been discontinued. Powdered white arsenic was replaced with liquid sodium arsenite as the toxic ingredient.

The year 1934 saw the introduction of Sodium Silico fluoride to replace the arsenicals, which are dangerous to humans and live stock. The newer poison, while being highly poisonous to insects, is only mildly toxic to warm-blooded creatures. Poison bait, which in 1931 contained equal parts of sawdust and bran as a carrier for the poison, now consists very largely of sawdust with a small amount of feed flour.

Preparation and distribution of bait has undergone some change also. The tendency has been to reduce the number of small local mixing stations and replace these with larger, more economical central plants from which it is shipped in a well-prepared, semi-dry condition to local distributing stations. The use of home-made mechanical spreaders has replaced hand-spreading of bait on a great many farms, thus contributing to more effective distribution.

The total Government expenditure on grasshopper control during this cycle has been approximately \$750,000.00. This does not include substantial expenditures incurred by municipal districts each year.

Careful estimates computed by Departmental supervisors each season show that, as a result of this expenditure, 8,932,316 acres of farm crops have been saved from destruction by grasshoppers in the past ten years, at an approximate cost of 8.4 cents per acre.

Past experience emphasizes the danger of even temporarily relaxing vigilance and the necessity for exercising every precaution in an effort to avoid a similarly destructive and costly recurrence of the grasshopper plague.

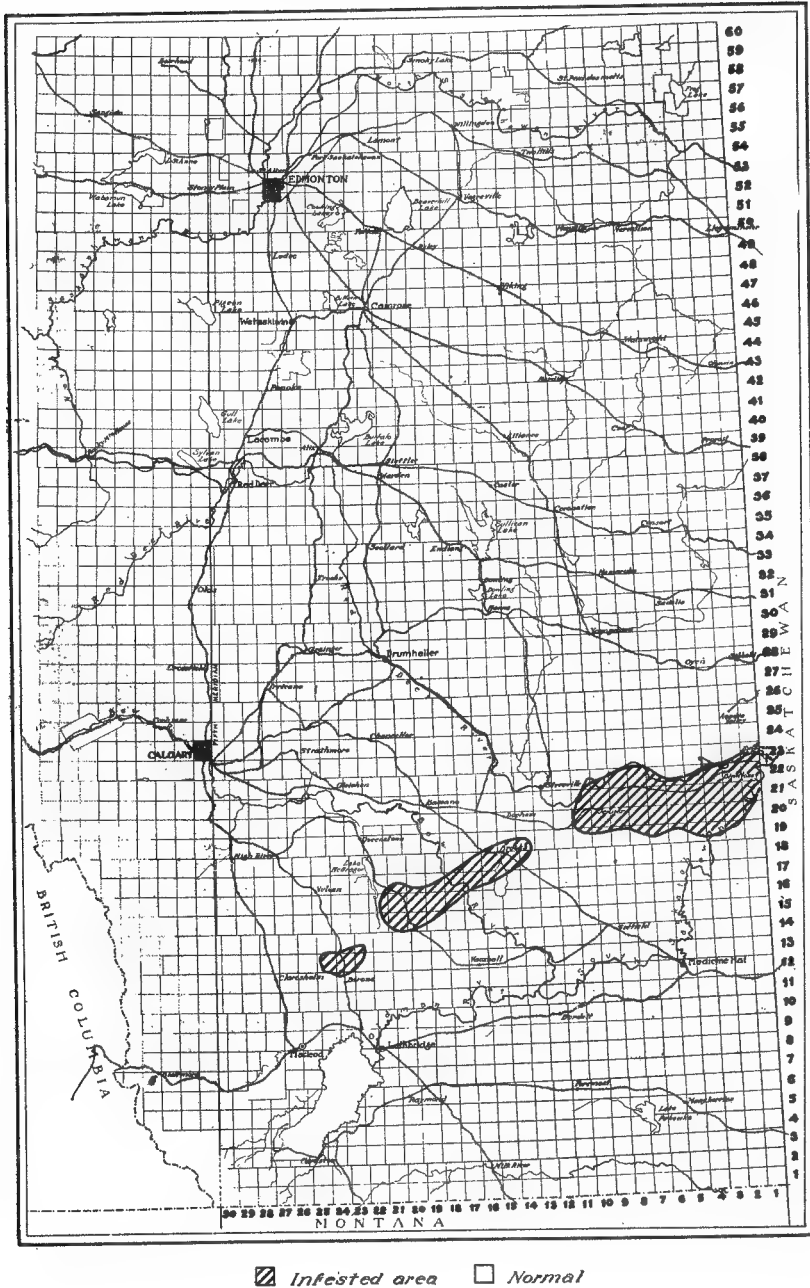
During this period the Province received invaluable aid and direction from the Dominion officials charged with the responsibility of survey and research, which is very gratefully acknowledged.

Grasshopper Control.

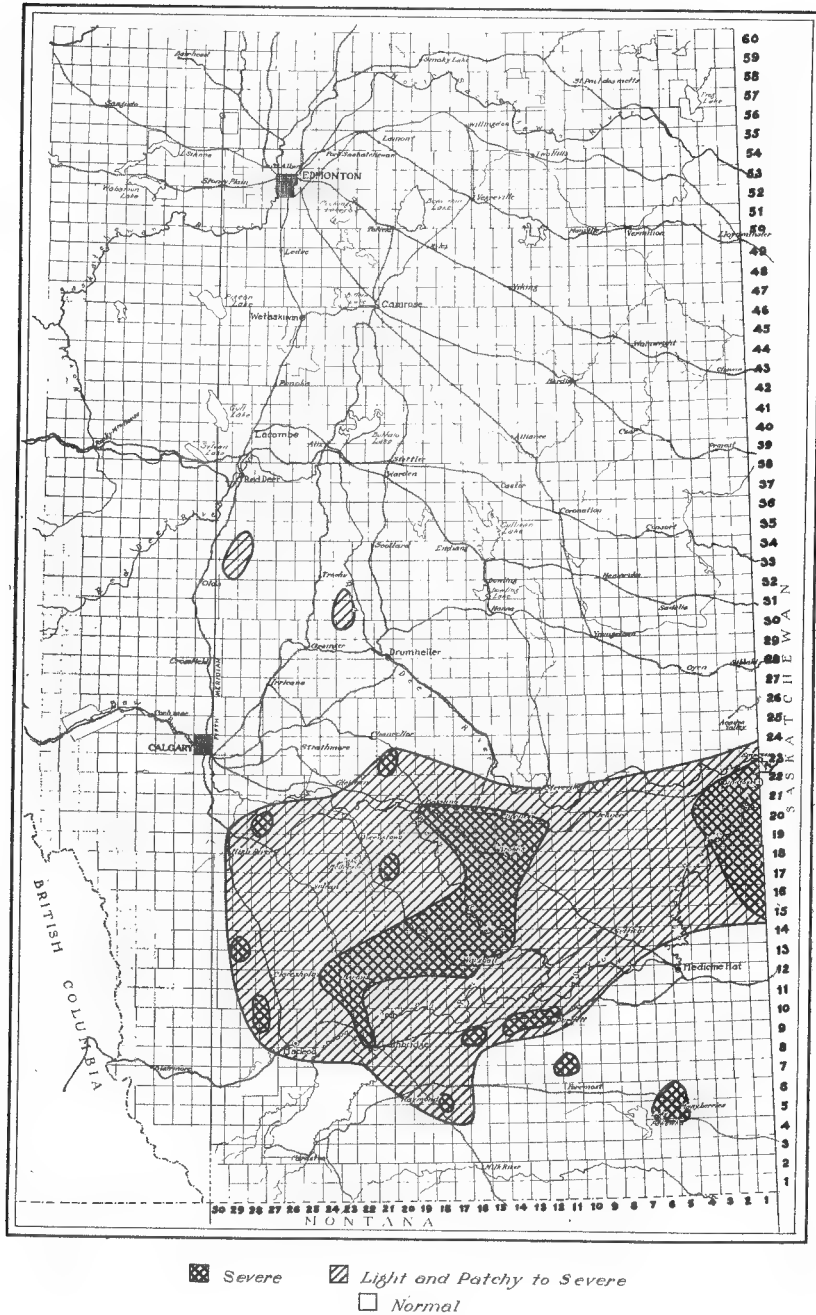
The 1940 infestation of grasshoppers proved to be less widespread than in any of the previous three years. The forecast for 1940 showed that grasshopper eggs had been laid over somewhat the same territory as in the year previous, so preparations were made to meet the threat over the entire area of approximately 25,500,000 acres if need for poison bait should materialize. Of this area, only 14,000,000 acres were expected to develop an infestation classed as from severe to moderate. Stocks of bait and other supplies were maintained throughout this area until the season was well advanced, at which time those points which had not then experienced an outbreak were evacuated.

Except in the extreme south-east, the season of 1940 was very favourable for rapid crop growth and, as is usual under such conditions, the insect damage to crops was much less obvious than it might otherwise have been. In many districts, although the "hopper" population was sufficient to have destroyed crops if the weather had been hot and dry, any damage done to the grain was ignored by farmers, and consequently very little poisoning was done.

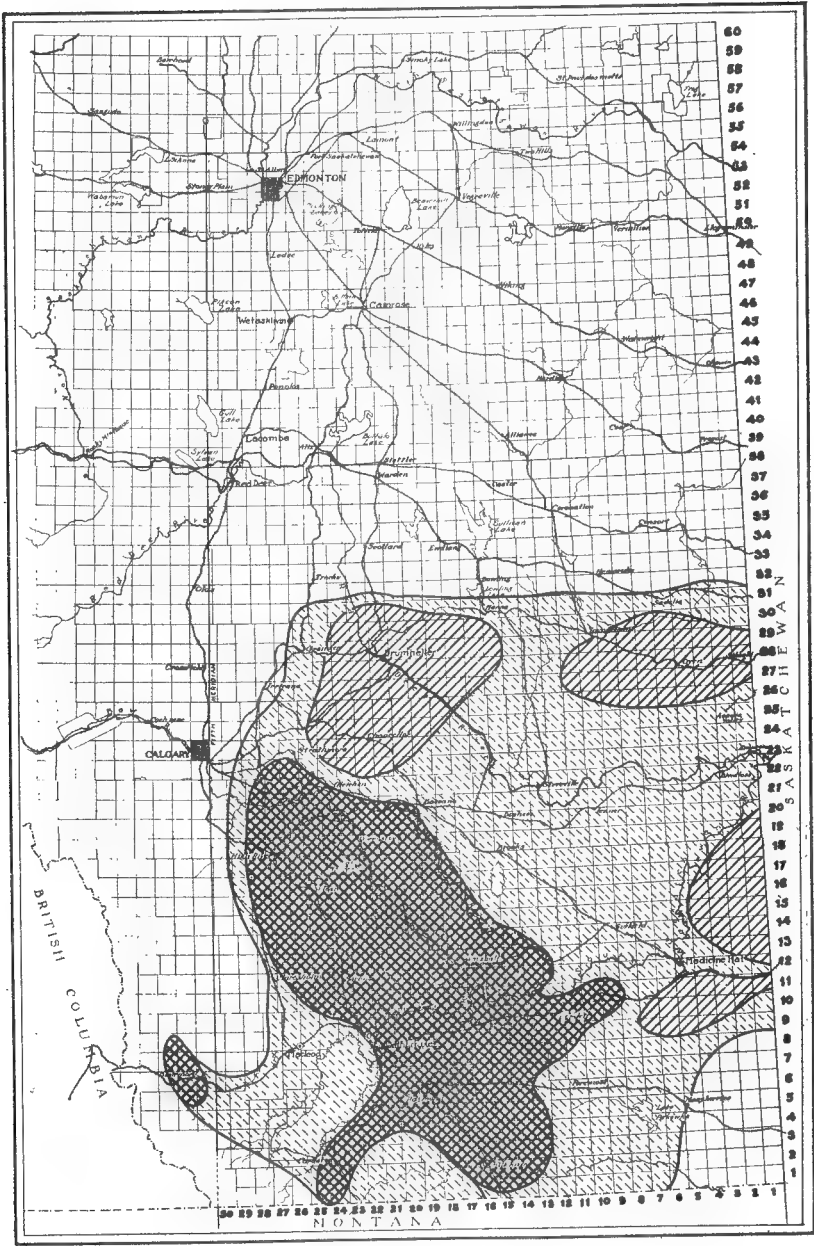
ALBERTA
GRASSHOPPER INFESTATION
1931



ALBERTA
GRASSHOPPER INFESTATION
1932

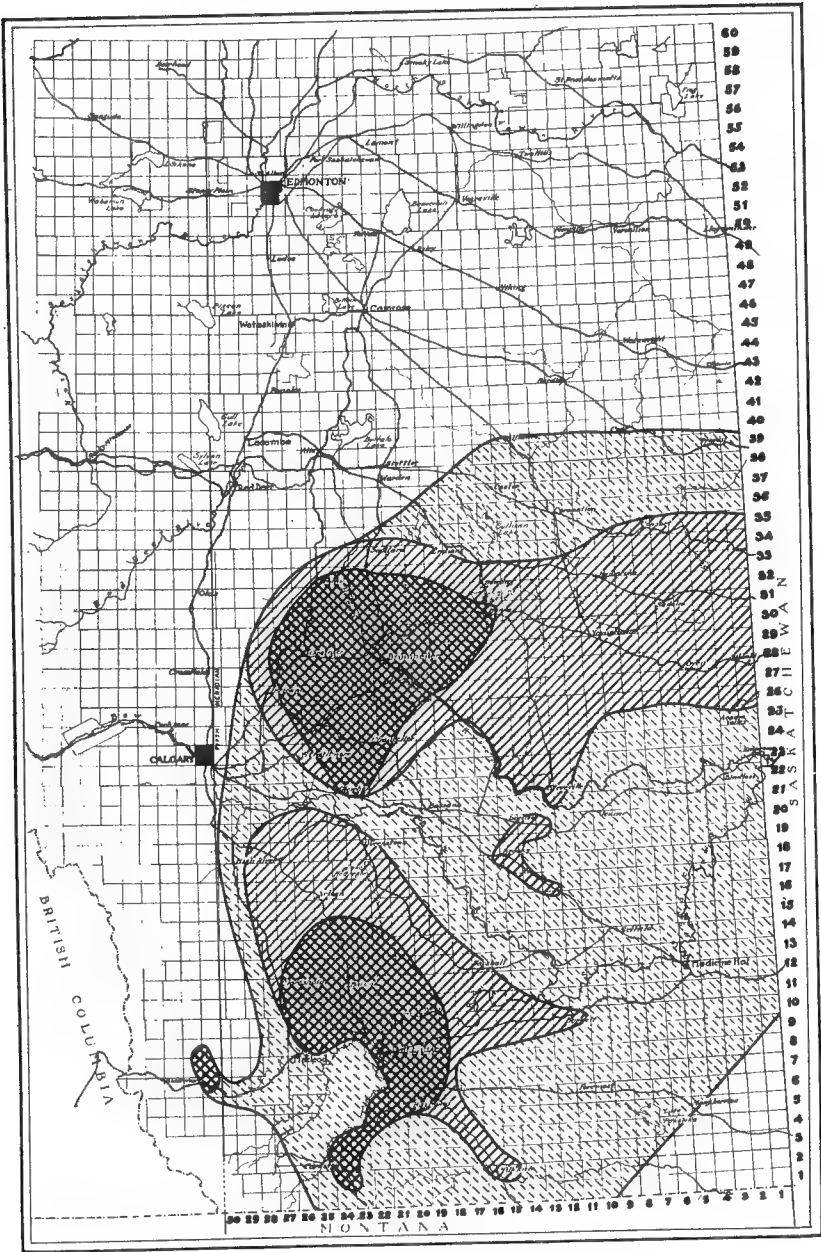


ALBERTA
GRASSHOPPER INFESTATION
1933



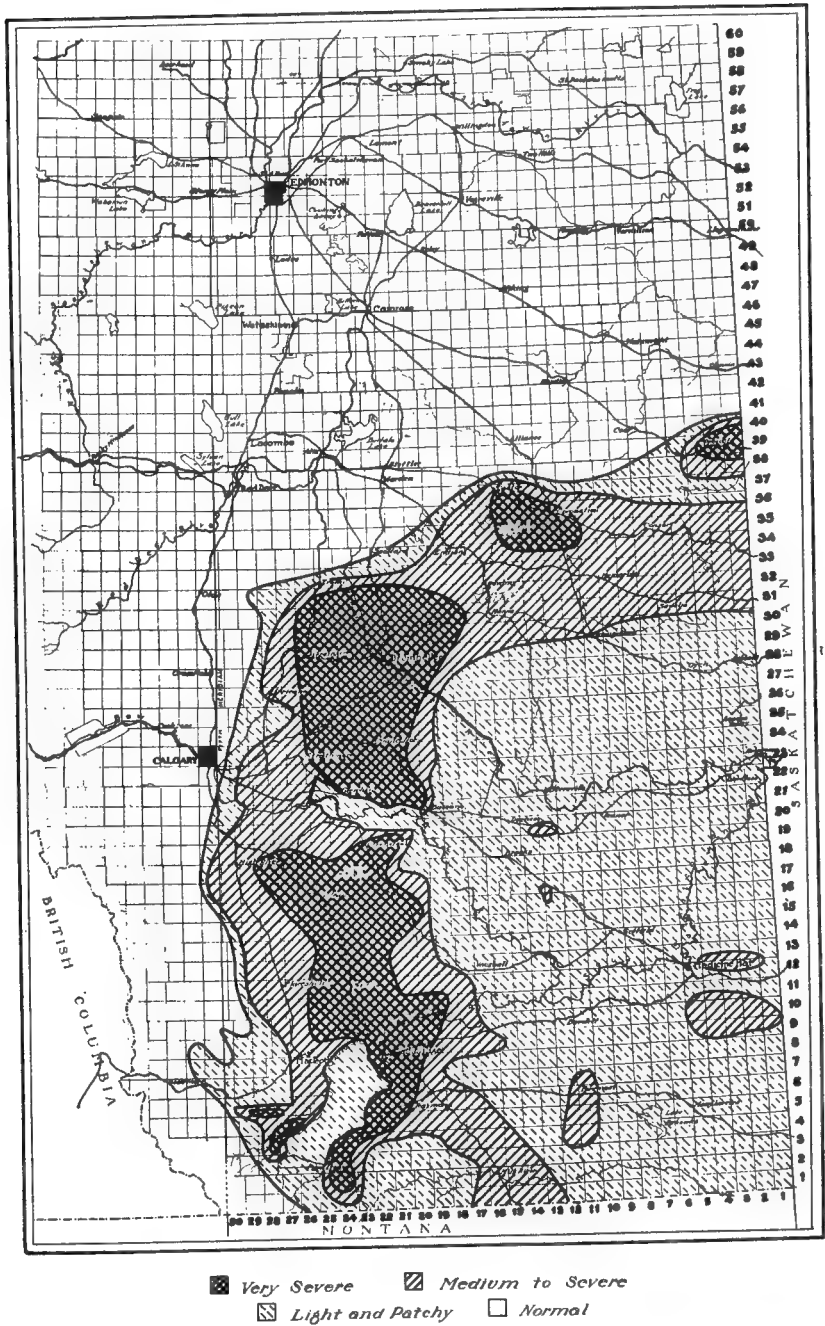
Very Severe Medium to Severe
Light and Patchy Normal

ALBERTA
GRASSHOPPER INFESTATION
1934

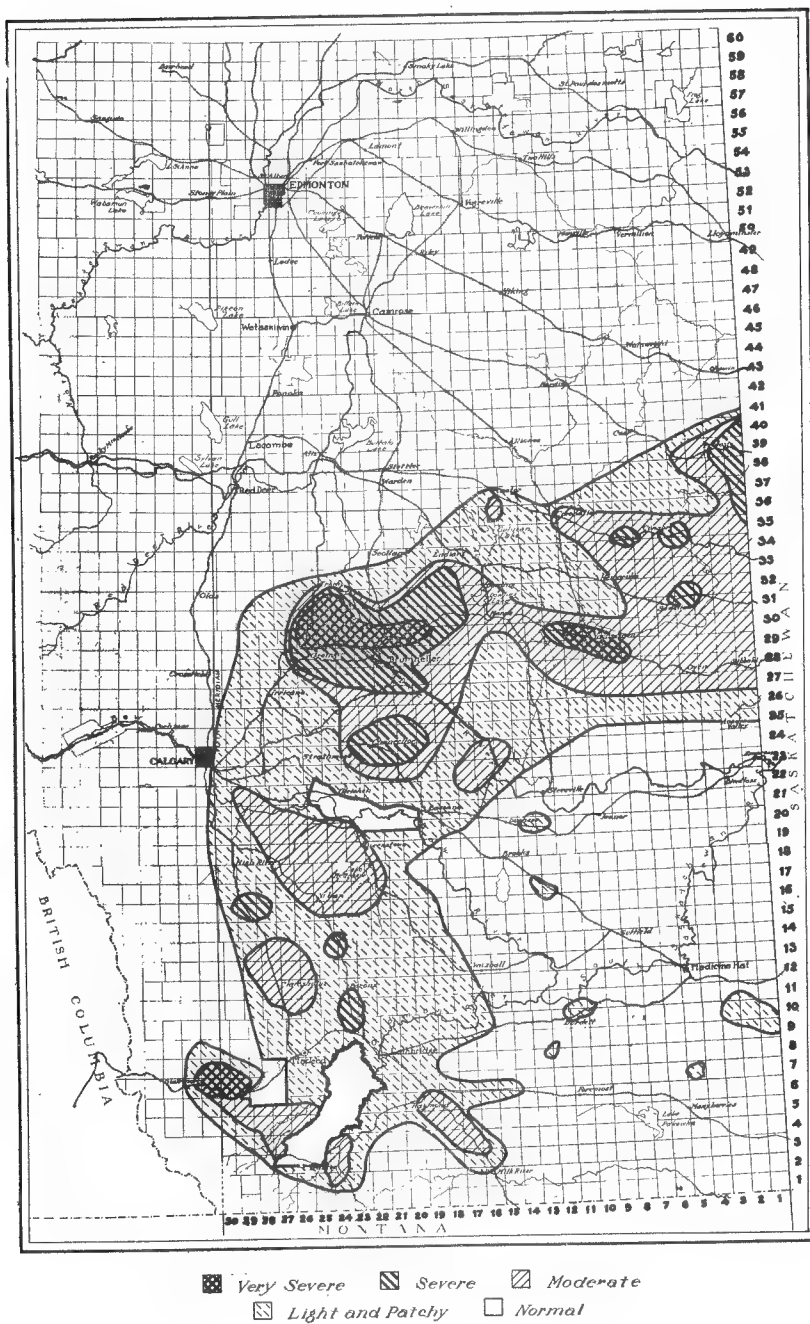


Very Severe Medium to Severe
Light and Patchy Normal

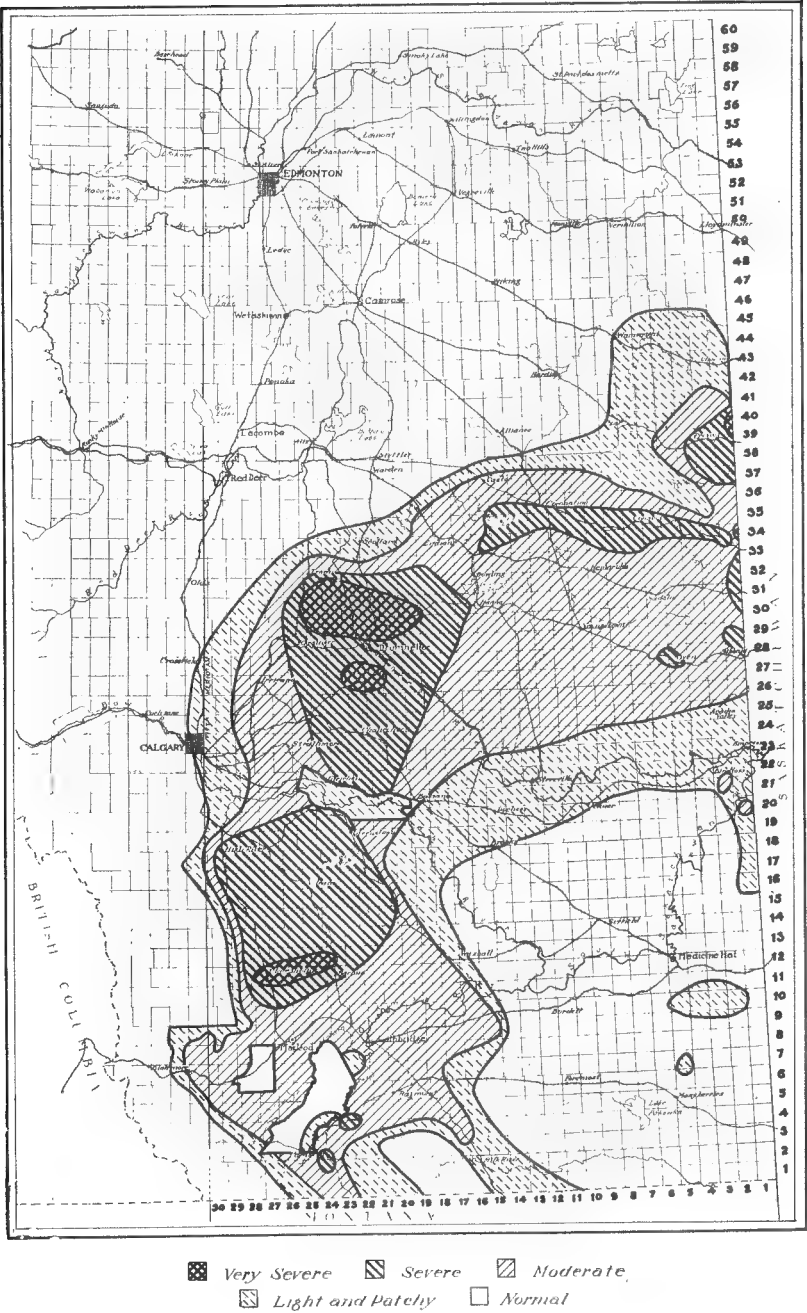
ALBERTA
GRASSHOPPER INFESTATION
1935



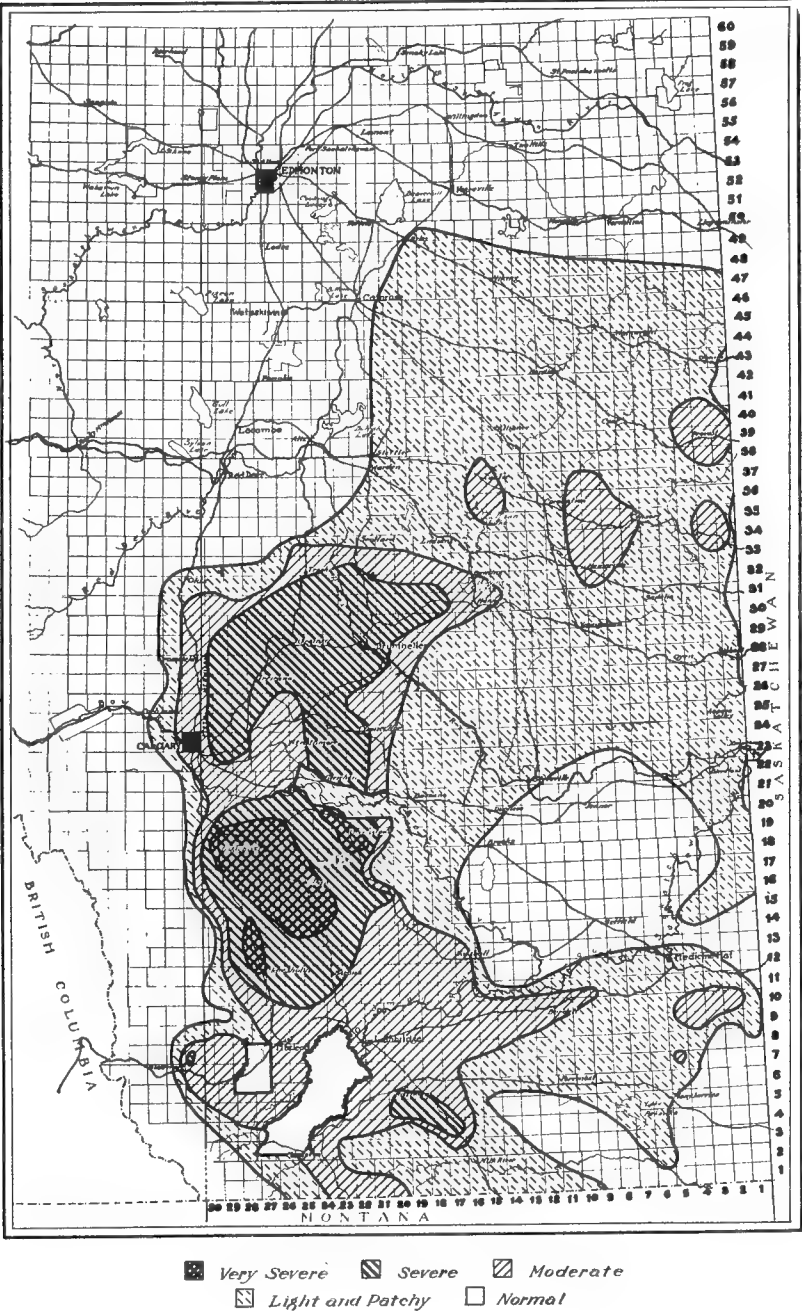
ALBERTA GRASSHOPPER INFESTATION 1936



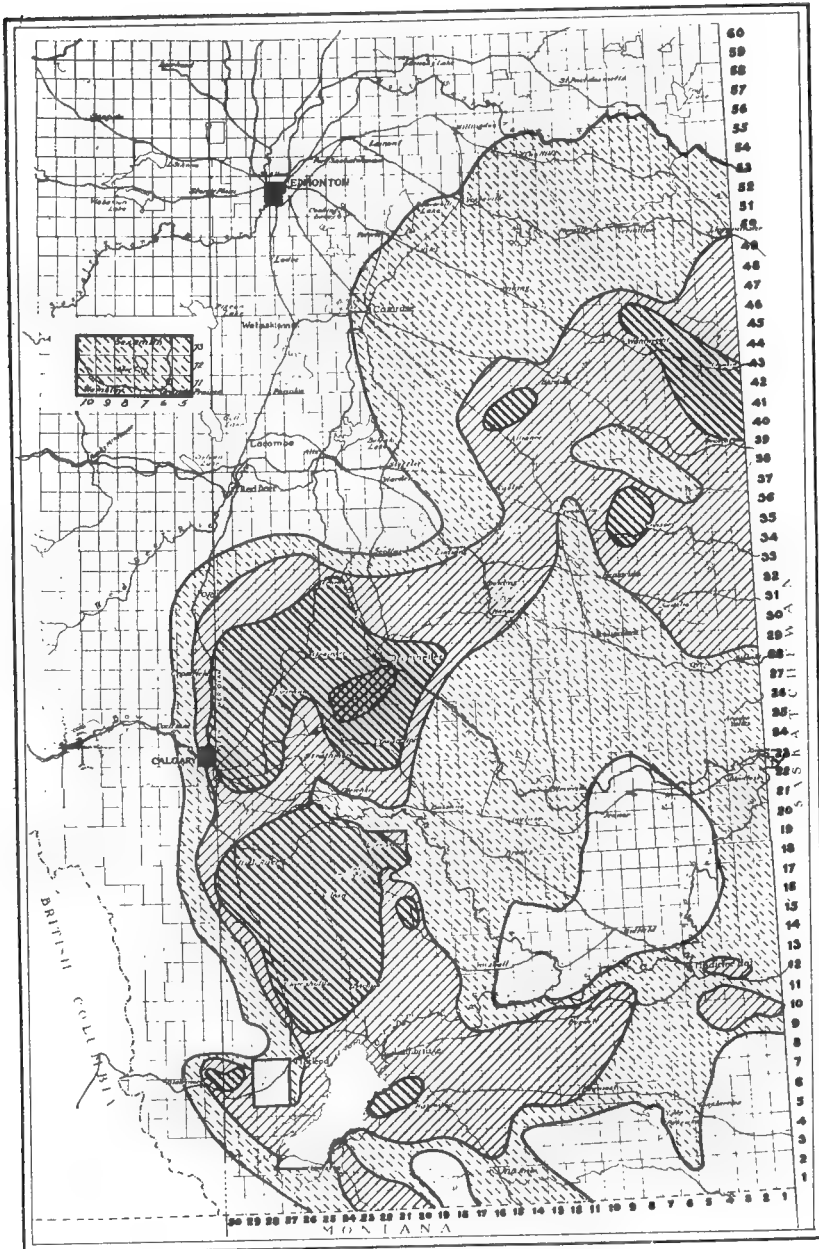
ALBERTA
GRASSHOPPER INFESTATION
1937



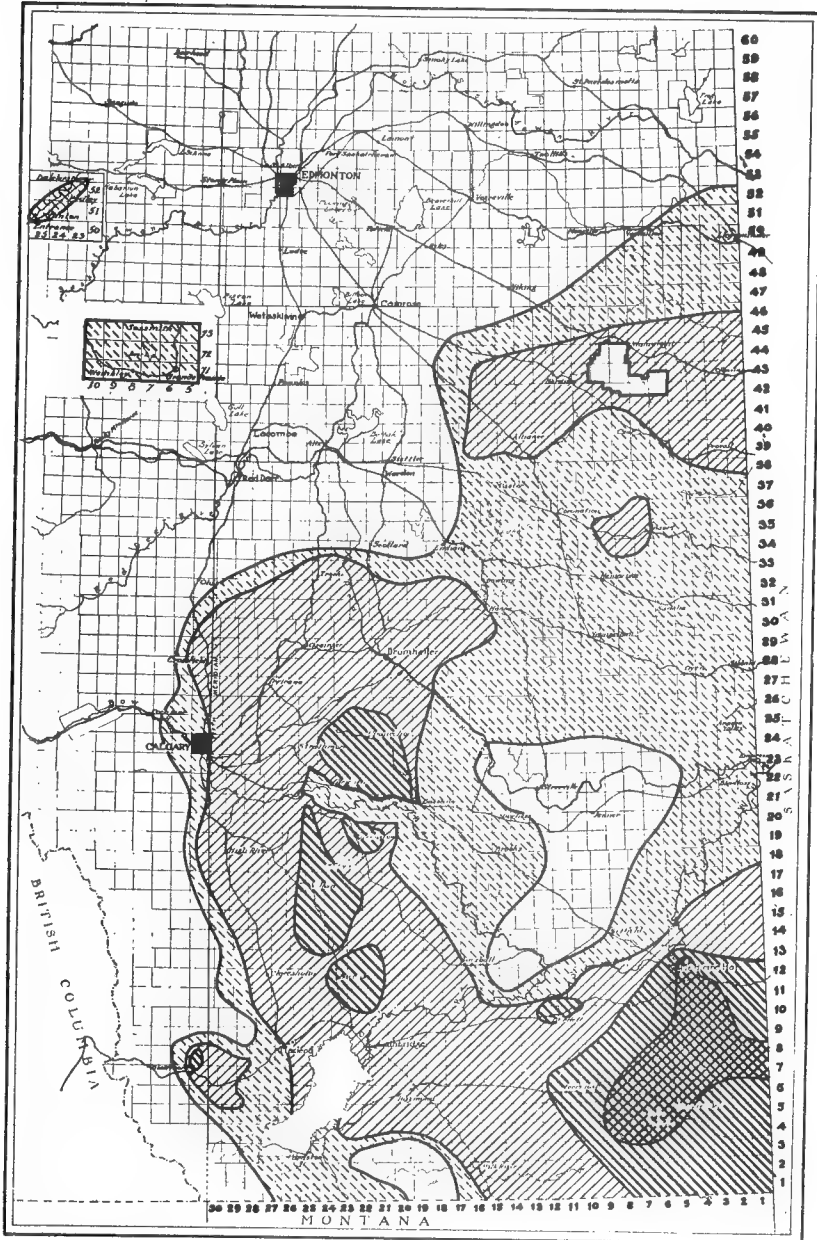
ALBERTA
GRASSHOPPER INFESTATION
1936



ALBERTA GRASSHOPPER INFESTATION 1939



ALBERTA GRASSHOPPER INFESTATION 1940



Very Severe
 Severe
 Moderate
 Light and Patchy
 Normal

The part of the Province which experienced a serious grasshopper plague this year was an area in the extreme south-eastern corner of the Province consisting of approximately 100 townships running 60 miles north from the Montana boundary, and 60 miles west from the Saskatchewan border. This infestation resulted from heavy flights of grasshoppers originating south of the International boundary which had landed and laid their eggs in that area during the summer of 1939.

Damage to crops from grasshoppers this year cannot be called extensive. In the south-eastern corner of the Province damage was severe, but did not affect a large crop acreage. Some damage there was inevitable since in that direction up to 60% of the crops were stubbled-in and the species of grasshoppers present—*Melanoplus mexicanus*—hatched throughout the stubbled-in crops and thus were difficult to combat. Entomologists estimated the grasshopper population in some places at 800 to the square foot. In such a situation the protection of stubbled-in crops by the use of poison bait alone was a practical impossibility. Throughout the remainder of the Province the protection of grain crops was not a serious problem. Only along the western and southern sides of the Province was there a sufficient population of grasshoppers to necessitate a prolonged poisoning campaign.

The total distribution of poison bait in 1940 amounted to 313,905 bushels as compared with 675,783 bushels in 1939. Of the total bait distributed, 95% of it was spread south and west of a line drawn through Medicine Hat, Lethbridge and Calgary. While there were moderate, spotted infestations in other districts, virtually no bait was spread north or north-east of Calgary, where in former years considerable protection was needed.

The bulk of poison used this year was mixed in central mixing stations at Calgary and Lethbridge. Some municipalities which had their own local mixing stations with supplies on hand continued to mix their own bait until their supplies were exhausted, after which they were supplied with mixed bait from a central mixing plant.

Present supplies of material on hand for preparing poison bait for 1941 are considerably lighter than last year. The 1940 campaign was carried on almost entirely on supplies held over from the 1939 season.

Immediately after the conclusion of the 1940 campaign, circular letters and posters in large numbers were mailed out to farmers and business establishments outlining cultural practices conducive to reducing next year's grasshopper population. An effort was made to encourage farmers to fall cultivate all stubble lands to destroy newly laid grasshopper eggs. It appears that a considerable amount of fall work was done in some districts.

Following is a brief comparative summary of the last three grasshopper control campaigns:

	1938	1939	1940
Acres of land in the area	27,000,000	29,500,000	25,500,000
Acres of crop land menaced	5,255,642	2,670,838	1,252,510
Number of stations operated	140	88	77
Bushels of poison bait spread	991,498	567,054	313,905
Number of farmers receiving bait	10,613	8,025	3,469
Estimated crop damage	3%	6.9%	3.8%
Estimated crop saved	19%	26.4%	30.1%

(Estimate of crop saved in 1940 is 377,000 acres)

REPORT OF THE ACTING LIVE STOCK COMMISSIONER AND SUPERVISOR OF FEEDER ASSOCIATIONS

(A. A. CAMPBELL)

The Live Stock Branch has again experienced an exceptionally busy year in 1940.

Enlistments in the Permanent Forces and Military Camp attendance by some members of the staff, in conjunction with resignations and interdepartmental transfers, has increased the duties of the remaining personnel. The co-operation of the members of the Branch so affected, in this respect, has been most satisfactory.

Climatic conditions and feed supplies for live stock were good throughout the year. Prevailing lower values of grains and other farm products had a bearish tendency in regard to demand and prices offered for certain classes of commercial and breeding live stock. These same circumstances created an increased interest by farmers in live stock feeding operations in an endeavour to increase their financial returns for feed and forage crops.

An estimated 95,000 lambs and 35,000 head of cattle were fed and finished in feed lots operated by commercial feeders and feeder associations, who purchase their feeder live stock in the Fall and sell them when finished. This number of live stock is in addition to those raised and fed by owners.

Interest and response to the various Live Stock Improvement Policies was very gratifying.

A brief resumé of the policies and of the several branches of the live stock industry will be dealt with under their respective headings.

CATTLE

The general trend of cattle production may be denoted by the comparative figures of cattle population for the past four years according to the June survey, which are as follows:

1940	1,365,900 head	1938	1,361,600 head
1939	1,337,400 head	1937	1,457,260 head

Prices received for finished cattle during the late winter and early spring months did not permit of much "margin" or spread between the price paid for feeders and that obtained for finished cattle. As the season progressed, however, prices advanced, and sales made during the months of May and June proved remunerative to the seller. Grass conditions being good early in the season resulted in grasser cattle coming on a strong market earlier than usual, the run of cattle being quite liberal during August. With large quantities of cheap feed in sight, the demand for feeders was very brisk at higher prices than has prevailed for a number of years, and this condition continued until the end of the year. The top grades of grass fat range cattle sold at from \$7.25 to \$7.70 per cwt.

An estimated 8,000 head of cattle were placed on cover crop in the Claresholm area for finishing, and fully 6,000 head were marketed before the end of the year. More interest is being taken yearly in this method of finishing cattle, whereby rapid gains in weight are made economically.

Total cattle marketings in Alberta for the year were 257,823 head as compared with a final figure of 248,748 in 1939, thus showing an increase of approximately 10%.

Dominion Department of Agriculture figures show cattle marketings in Alberta for the past seven years as follows:

1934	183,519	1938	264,505
1935	257,782	1939	248,748
1936	363,811	1940	257,823
1937	311,506		

Sales of cattle direct to packers for the twelve month period were 68,803 head, or an increase of 13.3% over 1939.

Sales of cattle to public stock yards were 162,990 head, or a decrease of 13.3% under the previous year.

Calf sales for the year decreased 9,400 head, or 8%.

The destination and number of cattle shipped out of the Province during 1940 was as follows:

British Columbia	65,977
Saskatchewan	5,380
Manitoba	15,409
Ontario	27,170
Quebec	14,275
Nova Scotia	
New Brunswick	
Great Britain	48,889
United States	
Total	177,100

The American cattle quota, allotted to Canada under the United States-Canadian Tariff Agreement, was very beneficial to cattle feeders, furnishing at remunerative prices an outlet for a large number of Canadian cattle.

The British Columbia demand also helped materially in this respect; in fact, had it not been for the Pacific Coast markets, extending from Vancouver to San Francisco, the live stock feeders would have been in an unhappy position.

The following table shows the trend of Alberta cattle exports to the United States for the past five years:

1936	81,785	1939	61,884
1937	75,205	1940	48,889
1938	38,185		

A glance at only one phase of Alberta cattle gradings provides an interesting picture, and emphatically indicates the necessity of a forceful continuation of cattle improvement policies.

ALBERTA CATTLE GRADINGS (STEERS ONLY)

	Good and Choice.	Medium, Common and Feeders.
1935	19.6%	80.4%
1936	21.6%	78.4%
1937	19.8%	80.2%
1938	30.7%	69.3%
1939	44.0%	56.0%
1940	38.3%	61.7%

During this six-year period an improvement in gradings is shown, with approximately a 25% increase in the numbers of steers in the higher grades.

The abundance of cheap feed available, and higher prices prevailing for dairy products resulted in more interest being shown in dairy farming. During the early Fall months an increased demand for milch cows was evidenced, at advanced prices. Enquiries for bulls of dairy and dual purpose breeding were more numerous.

THE BULL SALES

Lower prices for beef animals, and large numbers of entries at the three main bull sales, resulted in lower average prices being obtained for some breeds.

CALGARY BULL SALE

Breed	1938		1939		1940	
	No. Sold	Av. Price	No. Sold	Av. Price	No. Sold	Av. Price
Shorthorn	96	\$129.58	146	\$169.90	155	\$158.52
Angus	50	109.20	49	166.73	64	173.44
Hereford	288	156.70	247	230.00	404	205.22
Totals	434	\$145.23	442	\$203.14	623	\$190.34

EDMONTON BULL SALE

Breed	1938		1939		1940	
	No. Sold	Av. Price	No. Sold	Av. Price	No. Sold	Av. Price
Shorthorn	66	\$109.09	56	\$131.07	61	\$119.59
Angus	24	86.87	24	86.25	6	128.33
Hereford	25	107.60	13	143.84	14	127.50
Totals	115	\$104.13	93	\$121.18	81	\$121.60

LACOMBE BULL SALE

Breed	1938		1939		1940	
	No. Sold	Av. Price	No. Sold	Av. Price	No. Sold	Av. Price
Shorthorn	56	\$ 77.23	20	\$142.25		
Angus	14	101.07	14	123.57		
Hereford	32	113.75	29	138.80		
Totals	102	\$ 92.35	63	\$136.50		

SWINE

Alberta has made a new record for hog marketings in 1940. Total gradings amounted to 1,298,444 hogs which is an increase of 400,966 hogs over 1939, or approximately 44.6%.

It may be interesting to note here that the increase of hogs marketed at the Calgary Stock Yards was 74% over 1939, and the prospects are this volume of hogs will be maintained in 1941. A substantial increase also occurred on the Edmonton Stock Yards, i.e., 39.1%.

The improvement in gradings of hogs marketed over a period of time is very gratifying. The percentage of "select" hogs has increased from 5.54% in 1929 to over 36% in 1939, while the basic grade "bacon" during the same period has increased from 15% to over 47%.

During 1940 there was a slight decrease in the number of selects and a small increase in the number of bacons. This may be attributed to the large increase in numbers of hogs marketed, which was partially due to many farmers starting in hog production and the use of undesirable breeding stock, owing to the lack of a necessary supply of good quality boars and sows.

The increased hog marketings were evidently a contributing factor to the more uniform monthly receipts of hogs consigned to packing plants and stock yards.

At the end of the quota period, October 31st, 1939, Canadian exports of bacon products to Britain were 321,000,000 pounds. This was an excess of 30,000,000 pounds over the agreed quota of 291,000,000 pounds. The new bacon agreement between the British and Canadian governments provide for the export of 425,600,000 pounds of bacon products.

In order to maintain and also improve the quality of these exports, a change in the grading system was instituted by the Dominion Department of Agriculture. This change has caused considerable controversy amongst a number of farmers engaged in the industry. The hog breeders of long experience and continued

production, who represent the backbone of the hog production industry, are taking the long range view in this regard, having in mind the building up and maintaining of a post-war export market of considerable proportions. This industry returned to the producers approximately \$20,000,000 for the year.

A summary of the pure-bred sales for the years 1938, 1939 and 1940 follows:

EDMONTON SWINE SALE						
Breed	1938		1939		1940	
	No. Sold	Av. Price	No. Sold	Av. Price	No. Sold	Av. Price
Yorkshire sows	19	\$ 30.68	43	\$ 28.18	53	\$ 24.86
Tamworth sows	7	25.00	2	25.00	5	22.30
Yorkshire boars	23	41.56	79	31.43	85	23.95
Tamworth boars	4	32.00	3	17.70	10	17.10
Yorkshire bred sows	1	47.00	2	47.50	5	28.00
Totals	54	\$ 34.98	129	\$ 30.18	158	\$ 23.89

CALGARY SWINE SALE						
Tamworth sows	3	\$ 27.66	7	\$ 33.33	9	\$ 21.83
Yorkshire sows	63	27.80	56	37.69	87	24.94
Berkshire sows	6	27.17	3	29.17		
Tamworth boars	6	45.50	16	55.00	25	29.84
Yorkshire boars	50	48.39	106	49.41	109	21.67
Berkshire Boars	4	32.25	8	44.06	2	12.50
Totals	132	\$ 36.50	196	\$ 45.41	232	\$ 23.70

HORSES

The following are the figures for 1938, 1939 and 1940, showing the total export of horses from the Province:

To	1938	1939	1940
British Columbia	785	168	711
Saskatchewan	2,167	720	742
Manitoba	607	372	214
Ontario	3,328	1,756	1,102
Quebec	11,372	10,108	9,069
Nova Scotia	510	755	554
New Brunswick	622	737	824
Prince Edward Island	199	158	38
United States	600	652	397
Totals	20,190	15,426	13,651

As the above figures denote, there is a very definite decrease in the demand for horses outside the Province. A similar situation prevails in Alberta.

The present day competition which the tractor and truck have established in agricultural and industrial power throughout Canada has been the chief factor in the decreased demand for horses.

An enormous horse replacement has taken place within the Province considering that during 1940 the sale of combines totalled about 1,200 and of tractors over 4,000.

The June survey of horse population in Alberta shows 657,900 head, or a decrease of 700 horses as compared to 1939 figures.

A small number of horses were purchased during the late spring months for the French Government, and in the early Fall a considerable number of horses were purchased for bush work.

The annual Spring or Community Horse Sales increased in number, but the average sale price per head was about \$6.00 lower than the previous year. Too many light weight and improperly fitted horses continued to be entered for sale by the respective owners.

The following figures from the well known Lacombe Horse Sale, and typical of the other horse sales, show a decrease in both listings and average sale price per head:

LACOMBE HORSE SALE			
Year	No. Sold	Total Sale Value	Av. per Head
1930	357	\$16,569.86	\$82.80
1931	605	33,465.00	55.31
1932	386	22,967.50	61.08
1933	187	10,328.00	55.23
1934	203	13,764.50	67.80
1935	366	25,110.50	68.60
1936	308	25,830.25	83.86
1937	540	50,712.00	93.91
1938	684	57,540.00	84.10
1939	1,005	79,515.60	79.12
1940	815	59,288.00	72.75

SHEEP

Alberta leads all provinces in wool production and sheep population.

The June survey showed a sheep population of 882,600 head as compared with 834,300 in 1939, or an increase of 48,300 head.

The sheep breeder is in a strong position, considerably more so than breeders of other farm live stock. Higher prices prevailed throughout the year for both wool and lambs than have been experienced for many years.

As in the previous year, there was insufficient feeder lambs available to meet requirements of feed lot operators.

Lamb prices were fully one cent higher this past Fall for feeder lambs than a year ago, at approximately eight cents per pound.

Due to the competition in obtaining feeder lambs, purchasing started as early as the month of August. By the middle of September, feeder lambs were selling at a cent a pound higher than fat lambs. Lamb feeders have been advised to guard against marketing over-weight lambs, as this has a tendency to lower prices. Buyers have voiced severe criticism regarding too heavy lambs being marketed from certain feeding areas.

There is room for expansion in the sheep industry.

Numerous enquiries were received by the Department regarding the availability of ewes; however, due to light offerings at advanced prices, few transactions were made. Below is a summary of the pure-bred sheep sales in the Province for the years 1938, 1939 and 1940:

Breed	THE PURE-BRED SALES					
	1938		1939		1940	
	No. Sold	Av. Price	No. Sold	Av. Price	No. Sold	Av. Price
EDMONTON:						
Suffolk ewes	39	\$ 9.19	6	\$ 20.21	10	\$ 11.60
Oxford ewes	5	6.30	10	7.65	5	7.60
Shropshire ewes			7	9.36	8	9.06
Southdown ewes			7	8.07	2	10.00
Hampshire ewes					1	12.50
Totals	44	\$ 8.86	30	\$ 10.65	26	\$ 9.96
Suffolk rams	44	\$ 21.73	65	\$ 20.84	32	\$ 24.63
Oxford rams	27	18.11	21	19.07	39	17.67
Shropshire rams	11	16.91	12	21.50	15	15.37
Southdown rams	9	18.44	12	24.42	6	15.82
Hampshire rams	14	28.86	28	22.68	36	19.29
Cheviot rams	3	18.33				
Totals	108	\$ 11.63	138	\$ 21.31	128	\$ 19.51

Breed	1938		1939		1940	
	No. Sold	Av. Price	No. Sold	Av. Price	No. Sold	Av. Price
CALGARY:						
Suffolk ewes	23	\$ 15.72	33	\$ 16.73	55	\$ 15.46
Shropshire ewes	8	12.37	17	12.53	4	13.50
Southdown ewes	8	13.19	10	19.45	11	16.45
Hampshire ewes	58	12.17	53	17.97	86	15.53
Totals	93	\$ 13.15	113	\$ 16.92	146	\$ 16.58
Grade ewes	172	\$ 6.01	104	\$ 6.87	30	\$ 6.72
Suffolk rams	72	\$ 22.54	128	\$ 21.49	89	\$ 29.01
Shropshire rams	16	23.06	9	13.56	8	19.81
Southdown rams	19	23.16	17	19.03	22	19.73
Hampshire rams	118	22.84	118	22.95	138	21.12
Rambouillet rams	9	29.78	9	26.33	4	15.00
Corriedale rams	6	34.17	2	35.50		
Totals	240	\$ 23.33	283	\$ 21.95	261	\$ 23.56

THE CHICAGO INTERNATIONAL LIVE STOCK EXPOSITION

A few of the veteran Alberta cattle breeders who exhibited live stock at the recent Chicago Live Stock Show won many high awards with their exhibits, bringing distinction and honour to themselves and considerable publicity to the Province in demonstrating the quality of Alberta cattle.

In the breeding classes, the C.P.R. Department of Natural Resources, Calgary, on exhibits of Aberdeen-Angus cattle from their Coaldale Central Farm, obtained one fourth prize, two fifths, one sixth, two sevenths, two eighths, one ninth, and one seventeenth. In addition, also one fifth and one eighth prize were won in the Fat Stock classes on Angus steers.

Mr. Thos. Henderson, Lacombe, won a fourth prize on an Angus steer in the 1,150 and under 1,400 pound class.

The University of Alberta won the Reserve Grand Championship of the show on the excellent Shorthorn steer "Robin Hood". This steer was placed first in the class for Shorthorn steers 1,150 and under 1,400 pounds, also champion steer in this weight range, and champion Shorthorn steer.

Commendable awards were also obtained on other steers exhibited, comprising two second prizes, one fourth, three sixths, one seventh, and one eighth. This is a remarkable record considering that the University exhibited only 11 steers.

In appreciation of the achievements of these Alberta exhibitors, the Department has again decided to duplicate the prize moneys won by the exhibitors in the fat stock classes.

LIVE STOCK IMPROVEMENT POLICIES

These policies have been described in considerable detail in the previous Annual Report.

CO-OPERATIVE STALLION PURCHASE POLICY

The following is a summary of Stallion Clubs organized during the last six years:

Year	No. of Clubs
1935	16
1936	18
1937	27
1938	40
1939	39
1940	16
	156

During the year, 16 clubs were organized for which stallions were purchased, and in addition 5 stallions were purchased for clubs organized last year.

In line with the general trend of the horse industry, combined with the farmers' limited purchasing power and impassable road conditions during this seasonal work, fewer clubs were organized.

The several Sire Exchange Policies continue to receive an appreciative response from many farmers, also approval and support from the breeders of pure-bred live stock. These two-way policies, whereby an inferior grade sire is sold for immediate slaughter and thus ceases to propagate his kind, and is replaced by a typy pure-bred sire—either factor a worthy achievement—should have a marked effect in a very few years on the quality of live stock. The distribution of these male animals has been provincial wide, extending from the United States boundary to the Peace River district.

Under the Bull Exchange Policy, 395 young bulls were placed on farms during the 1938-1939 season, and during the 1939-1940 season 360 bulls were distributed.

The Boar Exchange Policy provided for the distribution of 287 boars during 1939 and 153 boars in 1940. During the past two years, 101 advanced registry boars were purchased in Eastern Canada as a source of new blood lines, and sold to pure-bred swine breeders in the Province.

DOMINION-PROVINCIAL SOW DISTRIBUTION POLICY

During the 1939-1940 season, 61 groups, comprising 667 farmers, were supplied with 1,371 gilts; and an additional 802 gilts were placed in individual orders, making a total of 2,073 gilts distributed.

At the end of the year the demand continues strong for pure-bred breeding stock, both boars and gilts, with only very meagre offerings from which to make selections.

THE RAM EXCHANGE POLICY

Action was only started on this Policy, the most recent of the numerous live stock improvement policies, on October 16th, 1940. During this short period to December 31st, 52 rams have been distributed to farmers.

Rams purchased have included champions of their breed at recent sheep sales to rams of lesser value; however, high average quality rams were obtained considering the amount of money expended in purchasing.

Breed classifications of rams distributed as follows:

Hampshire	29
Suffolk	6
Oxford	9
Shropshire	4
Southdown	3
Rambouillet	1
Total	52

LIVE STOCK FEEDER ASSOCIATIONS

The financial assistance made available to members of legally incorporated feeder associations, operating under "The Feeder Associations Guarantee Act", to purchase feeder live stock for finishing, is proving of inestimable value to many live stock feeders.

The majority of feeders were satisfied with results obtained during the past feeding season, having received greater financial returns for their feed grains and forage crops through finishing live stock than were obtainable by the sale of similar feeds through the regular marketing channels. The price spread was small on early live stock sales; however, as the feeding season advanced, remunerative sales were made. Well finished light cattle sold in June at \$8.25 per cwt.

Twelve associations were in operation during the 1939-1940 feeding season, which was double the number operating the previous year, with a corresponding increase in the amount of credit guaranteed by the Government for the purchasing of live stock.

Requests for the formation of additional associations were received. Associations in some districts have suggested that the \$100,000.00 allotment per association should be increased to \$150,000.00 in order to provide ample funds to purchase live stock for the rapidly increasing membership of the associations.

The following table concisely depicts the volume of operations of Alberta Feeder Associations during the 1939-1940 feeding season:

Association and Address	Total Membership	No. Members Feeding	Live Stock Purchased		Credit Provided
			Cattle	Sheep	
Bow Valley Livestock Feeders, Brooks	129	44	1,531	1,351	\$ 76,733.16
Central Alberta Livestock Feeders, Lacombe	84	43	2,589	1,671	96,117.38
Edmonton District Livestock Feeders, Edmonton	53	37	1,913		62,694.87
Innisfail Feeders' Association, Innisfail	35	32	1,330	90	43,970.42
Lethbridge Feeders' Association, Lethbridge	47	24	1,101	4,166	75,618.77
Olds Livestock Feeders, Olds	55	38	2,552	934	105,628.57
Raymond-Magrath Feeders, Magrath	63	23	962	3,123	63,015.14
Red Label Feeders, Raymond	32	25	1,435	5,962	97,260.37
Taber Feeders, Taber	58	29	1,440	278	87,594.98
Vauxhall-Albion Ridge, Vauxhall	58	12	265	2,712	24,786.29
Vermilion and District, Vermilion	61	31	795		28,848.99
Wainwright-Edgerton-Chauvin Feeders, Edgerton	93	13	335		12,856.27
	768	351	16,248	20,287	\$775,125.21

THE STOCK INSPECTION ACT

During the past year no changes were effected in The Stock Inspection Act, but additional work in connection with live stock inspection has become necessary to cope with the increased number of live stock sold at community or co-operative auction sales.

In an effort to safeguard the interests of the stock producer, these sales have been closely supervised, and all cattle passing through the sales ring have been brand inspected and a record kept of the stock sold.

Inspection of all cattle at these community sales also provide an excellent check up of unrecorded brands, or any abuses of The Brand Act and The Stock Inspection Act.

A noticeable improvement is seen in the co-operation by people trailing or trucking live stock in obtaining trailing permits, bills of lading, etc. The *bona-fide* stock raiser realizes the importance of a check being kept on the movement of cattle from one point to another within the Province.

Losses of cattle and horses pastured in the various Forest Reserve areas have been unusually low, and set down by the stockmen as being due mainly to death from natural causes and animals straying out of the Reserve area.

BRAND RECORDS

During the year there were 1,138 new brands recorded to their respective owners, consisting of 772 cattle, 356 horse, 5 poultry, and 4 sheep brands. Transfers registered numbered 128; searches, strays and certified extracts numbered 304, renewals 2,836 (cattle 1,817 and horse 1,019), making a combined total of 4,406 transactions.

These figures, compared with 1939, show an increase of 117 cattle brands, 21 transfers, 4 sheep and 4 poultry brands; a decrease of 482 renewals, 41 horse and 3 fox brands.

Through the co-operation of the R.C.M.P. and the Stock Inspectors, a more thorough check has been made on the users of unregistered brands, with the result cattle brands are steadily increasing. Farmers as well as ranchers are seeing the benefit of branding their stock as a means of preventing theft.

The approximate number of brands now in good standing in our registers are as follows:

Cattle brands	12,266
Horse brands	7,300
Poultry brands	13
Sheep brands	7
Fox brands	90
Total	19,676

Mr. T. E. Patterson, former Recorder of Brands, was superannuated in July. He had been in the service of the Government for over 29 years.

THE DOMESTIC ANIMALS (UNORGANIZED TERRITORY) ACT

Much work is entailed in the administration of this Act, relating to the establishment and maintenance of pound districts and the disposal of estray animals.

Numerous requests for the establishment of new pound districts and the revision of boundaries of existing districts have required consideration. There are at present 137 pounds in operation in Local Improvement Districts under the jurisdiction of this Branch.

RESTRICTED AREA PLAN

The object of this plan is the eradication of tuberculosis in definite areas. At least two-thirds of the cattle owners in any definite area, including cattle owners resident in towns or villages, must sign a petition for the establishment of such an area under this plan. This petition must be forwarded by the Minister of Agriculture to the Minister of the Dominion Department of Agriculture requesting that the necessary action be taken.

Work continues in obtaining the necessary petitions for the formation of new areas, regardless of the fact that the actual testing of cattle by Dominion veterinarians has been temporarily lessened for economic reasons and war activities.

Areas in which the first general test has been completed comprise the following Municipal Districts: M.D. No. 517, Clover Bar; M.D. No. 518, Strathcona; M.D. No. 457, Lloyd George; M.D. No. 307, Starland; M.D. No. 337, Vimy.

The latter four districts are classified as accredited areas, and indications are that M.D. No. 427, Evergreen, will be in this classification when testing is completed early next year.

THE HORNED CATTLE PURCHASES ACT

In 1938 the Alberta Legislature passed what is known as "The Horned Cattle Purchases Act", whereby live stock shippers were required to deduct \$1.00 per head on all horned cattle bought in the Province of Alberta, this deduction to be forwarded to the Department. The moneys received under the Act are placed in a trust fund to be used for the improvement of live stock in the Province and for any other type of live stock work found necessary, whereby the farmer receives a direct benefit, as well as expenditures in the administration of such live stock improvement work.

The object of the Act is to encourage the dehorning of cattle by breeders, as horned cattle frequently cause considerable damage in transit to market.

WARBLE FLY POWDER

A large quantity of Warble Fly Powder was sold at cost to organized groups of farmers in an effort to combat the Warble Fly. It is the intention of the Department to continue this service.

REPORT OF THE PROVINCIAL VETERINARIAN

(DR. P. R. TALBOT)

During the past year this Branch has continued to render every possible assistance in controlling animal diseases in districts where the services of a qualified veterinarian are not available.

There are many diseases affecting live stock that do not come under The Dominion Animal Contagious Diseases Act, and the farmers must depend upon the Provincial Government for help in these cases. We also have a considerable number of valuable animals at our Provincial Government institutions which require supervision from a health standpoint. We are continuously aiding communities, as well as municipalities, in the prevention and control of all diseases that make their appearance in live stock.

We have always kept in mind that veterinary assistance assures a food supply for the people of this country, and unless such service is maintained, not only does the individual farmer suffer, but Canada as well. It is by the prevention and control of diseases that the productiveness of horses, cattle, sheep, swine and poultry has increased so rapidly, and this would not have been possible without the contribution made by our veterinary service.

HORSES

The work done in connection with Equine Encephalomyelitis (Sleeping Sickness) is one of the examples of the prevention of epidemics, and the efforts extended in connection with this disease alone prevented an enormous loss in Alberta, and resulted in a lower mortality than in any of the three prairie provinces.

We were fortunate in not having any serious outbreaks during 1940. There were individual cases in many districts throughout the Province, but in all the cases seen or reported not one had been vaccinated this year, and few had been inoculated in previous years. There is little doubt that vaccination with "Chick" vaccine reduced the incidence of the disease during the past two years, and had not energetic steps been taken to encourage vaccination our losses might have been heavy. It is well to bear in mind that the use of vaccine over wide areas does not always receive the credit it should, for as a rule the farmer vaccinates the most valuable animals and leaves undone both old horses and colts that are isolated in some pasture away from likely sources of infection. During 1940 many farmers decided to wait until the disease appeared before having their animals vaccinated. Such a procedure would have been most unfortunate if an epidemic similar to 1938 had taken place.

The number of treatments of "Chick" vaccine used in 1940 amounted to approximately 59,758, which was a considerable reduction to that used in 1939.

Equine Infectious Anaemia, or Swamp Fever, as this disease is commonly called, is still occurring in outlying districts, and a considerable number of cases were reported during the year. Although the disease is confined largely to horses pastured on uncultivated land, or fed on slough hay, and is rarely seen in horses pastured on cultivated land, it is a serious problem to the farmers establishing themselves in the newly settled areas, and is of con-

siderable economic importance to them. Unfortunately, no known treatment is of lasting value. Symptomatic treatment and preventive measures are the best that can be offered at present.

Navel Disease has been quite prevalent in 1940. Modern methods of treatment have helped considerably in preventing losses, but in spite of all our efforts this disease continues to be one of the most serious affecting young colts.

CATTLE

Shipping Fever (Hemorrhagic Septicemia).—This disease is a serious problem to the cattle industry. It has been more or less common in Alberta for many years, but the number of outbreaks and the mortality rate varies greatly from year to year. The cause of the disease is an organism known as *Pastuerella Boviseptica*. Under certain conditions the organism producing the trouble may become highly virulent. The most common contributing factors are lowered resistance through exposure, change of diet, unbalanced ration, inhuman handling, trucking over long distances and overcrowding in cars. This disease can be controlled by vaccination with a proper biological product.

Blackleg has been prevalent in the Province for many years. There are certain districts where outbreaks are especially common. Every effort has been made to encourage annual vaccination of calves against infection, but in spite of all our efforts some farmers become careless, neglect to vaccinate and losses result. We wish to emphasize the importance of the disposal of carcasses of animals dying from this disease as an additional precaution in preventing new outbreaks.

Infectious Keratitis.—We have been asked to investigate and assist in controlling a considerable number of outbreaks of this disease in feeder as well as range cattle during the past year. This is the only infectious eye trouble that has been especially common in the Province. Fortunately, if the affected animals are separated from the non-affected, and the diseased eyes properly treated, recovery usually takes place.

Coccidiosis is becoming a problem, not only in cattle placed in feed lots, but in certain farm herds as well. So far the cases which have come under our observation have been largely confined to a few animals in a herd. We have also found that if the affected animals are segregated, contaminated feed or bedding destroyed and the proper medicinal remedies given, that the animal makes a satisfactory recovery, providing, of course, that the treatment has been started before the animal becomes badly debilitated.

We have had many requests for help in connection with digestive problems, usually arising from faulty feeding, especially in feeder cattle.

Impaction, Bloat, Gastritis and Enteritis are among the most common. Most of these troubles can be traced to putting the cattle on full feed too quickly, or feeding food stuffs to which they are not accustomed.

Foot Rot.—Occasionally this disease assumes serious proportions, especially in feeder cattle. The difficulty in handling these cases frequently causes treatment to be neglected. When a large number of cattle become affected in a feed lot, it often happens that the owner has not time to treat cases individually—nor the facilities to control the animals.

SWINE

The extent of the loss of pigs is most difficult to obtain. However, there is no question that it is considerable, and from available information we know that the mortality rate has been much higher than formerly. We believe that many farmers are not paying enough attention to the selection, development and care of their brood sows, and if more time could be given to increasing the breeding efficiency of their animals, many losses could be prevented. In our opinion, sufficient attention is not given to the feeding and diseases in connection with breeding swine. Especially is this true of the sow's diet during the gestation period. Many of the losses in young pigs occur during the first week after farrowing. If the feed given to the sow during this critical period contained the proper quantities of tissue and bone building elements, and after farrowing a diet given that would stimulate milk production, it should assist greatly in lessening the mortality rate.

Insanitary conditions play an important part in connection with the health of swine. Too much attention cannot be given in providing clean, dry, properly ventilated farrowing houses and pens. We are asked to investigate many cases of losses in swine throughout the year, and in the majority of cases it is our opinion that most of the ailments of swine could be prevented by practicing precautionary measures.

SHEEP

The winter feeding of lambs is becoming one of the most important industries of Alberta. Most of these lambs are raised in the southern part of the Province and fed in feed lots in the irrigation districts, as well as in districts in Central Alberta. With the increase in this industry diseases have become a serious problem. Those who have gone extensively into lamb feeding have frequently turned to this Branch for help and counsel when losses have occurred. Most of the troubles in lambs occur as a result of conditions connected with shipping and exposure.

Regarding troubles associated with feed conditions, the following are frequently met with: over-eating, indigestion, bloating and diarrhoea. We are also frequently consulted in connection with Urinary Calculi. Stomach worms and tape worms are becoming more prevalent in blocks throughout Alberta, and unless careful treatment is practiced, parasites will become a serious menace to the sheep industry.

Pregnancy disease of ewes is particularly common some years. This was especially noted in the spring of 1940. The loss from Death Camas poisoning was not heavy in 1940—only a few deaths having been reported to us. Improved pasture conditions during the past summer, no doubt, accounted for the decrease in the death rate.

STALLION ENROLMENT

Horse breeding is an important industry in this Province, and we are making considerable improvement in the class of horse raised. The popularity of our horses is evidenced by the large number of buyers from the United States and Eastern Canada who come to our annual sales each spring. There has been a gradual stiffening in our inspections in an effort to eliminate the unsound stallion being used for breeding purposes. Our Stallion Enrolment Act calls for the stallion being not only sound, but of proper type

and conformation as well. By adhering to these principles we hope to build a reputation for having the soundest and best class of horse in Western Canada.

We appreciate the fact that mechanized farming is replacing the horse to a certain extent, especially in some districts where large farms are the rule, but we feel that the raising of a few colts of good quality on every farm is a sound investment, and that there will continue to be a demand for horses, not only in our own Province, but elsewhere as well.

The popularity of thoroughbred horses is steadily increasing, and the advancement we have made in this breed is shown by the record of the number of our horses which have won distinction on the racing circuit throughout Western Canada during the past years. We would also like to draw attention to the interest taken in the breeding of heavy and light weight hunters. The classes for these animals are probably the most popular at our annual spring shows at both Calgary and Edmonton. We have felt that there should be a good demand for heavy weight hunters, and encouragement should be given to the breeding of such animals, but to be successful great care must be taken in the selection of the dam and sire. We believe such an undertaking holds great possibilities, and should be given consideration by our Thoroughbred Breeders' Association.

The following is a synopsis of the number of stallions enrolled and stallions inspected according to breeds; those examined according to the 1938 Amendment to The Stallion Enrolment Act; the number of stallions examined that were imported, and the stallions re-examined on appeal for re-inspection:

NUMBER OF STALLIONS ENROLLED IN 1940				
Percherons	452	Standard Bred		9
Clydesdales	240	Thoroughbred & American Saddle		20
Belgians	138			
Shires	11	Total		879
Suffolk	9			
NUMBER OF STALLIONS INSPECTED IN 1940				
Percherons	154	Standard Bred		1
Clydesdales	95	Thoroughbred & American Saddle		8
Belgians	44			
Shires	8	Total		311
Suffolk	1			

Number turned down as being unfit for public service, 109.

According to the 1938 Amendment, 80 were impacted, out of which 43 were passed.

Seventeen stallions were imported and inspected, of which 2 were turned down.

Re-inspection was made on 11 appeals. Out of this number, 5 were passed.

REPORT OF THE DAIRY COMMISSIONER

(D. H. McCallum)

The dairying industry of Alberta made marked advancements during 1940. The outstanding features of this report were an increased value of dairy products, an all-time record for factory cheese production, and an improvement in quality for both creamery butter and factory cheese.

Ample feed supplies during the winter of 1939 and 1940 sent the milch cows on to spring pastures in an excellent condition. A wet cold spring retarded pastures, and affected deliveries of cream for an unusually long period during April and early May. However, the added moisture improved pastures quickly with the advent of warmer weather. In the northern sections, many of the early cuttings of hay were damaged with rain, but the second cuttings yielded an excellent crop, while the supply of coarse grains was much above normal.

The production of creamery butter amounted to 29,796,520 pounds, a slight increase of 46,562 pounds over 1939, while the production of factory cheese reached an all-time record with 2,705,853 pounds. The estimates on the production of farm dairy butter indicate a decrease of 912,000 pounds, or 5.7%, which affects the total milk production for the year.

Practically all dairy products advanced in price during the year, which makes it possible to report the total value at \$19,532,344. This is an increase of approximately one and one-half millions of dollars over the total value received in 1939, and is the highest value for dairy products since 1929.

The improvement in quality of creamery butter is most gratifying, when we consider the high standard attained in recent years. The Federal grading reports indicate that 88.1% of all butter graded qualified for first grade and that 63.4% of the first grade scored 93 points or over. These figures indicate the highest quality since the grading became a function of the Federal Department of Agriculture during 1927.

The following statements include a summary of the production and values of dairy products for the past two years:

QUANTITIES AND VALUES OF DAIRY PRODUCTS
(1940—FINAL)

	Pounds	Price	Total Value
Creamery Butter	29,796,520	\$.2231	\$ 6,647,604
Farm Dairy Butter	15,000,000	.1731	2,596,500
Factory Cheese	2,705,853	.1425	385,584
Farm Dairy Cheese	225,000	.1225	27,563
Ice Cream and Ice Cream Mix (gallons)	664,703	1.0832	720,000
Milk, Cream and Evaporated, Consumed, Fed to Animals or otherwise utilized			9,155,093
			<u>\$19,532,344</u>

(1939—FINAL)

	Pounds	Price	Total Value
Creamery Butter	29,749,958	\$.2106	\$ 6,265,341
Farm Dairy Butter	15,912,000	.1606	2,555,467
Factory Cheese	2,196,157	.1203	264,198
Farm Dairy Cheese	225,000	.1003	22,567
Ice Cream (gallons)	619,345	1.1237	695,954
Milk, Cream and Evaporated, Consumed, Fed to Animals, or otherwise utilized			8,266,206
			<u>\$18,069,733</u>

DAIRY CATTLE

The number of milch cows in Alberta at June 1st, 1940, was 416,800, according to the estimate made by the Dominion Bureau of Statistics. This number represents a decrease of 12,400, or 2.9% under the number reported a year earlier. This factor is no doubt responsible for the reduction of .3% in the total milk production. The number of milch cows in the Province has decreased every year since 1935, while the milk production during this period was increased, indicating that the production per cow has increased considerably, placing dairying on a more profitable basis.

CREAMERIES

There were 95 creameries in operation during 1940 as compared with 96 during the previous year. The creamery at Kinsella did not re-open and the plant at Strathmore closed early in the year. A new factory was built at Evansburg, while the creamery at Sangudo was re-opened after being closed since 1928. It is interesting to note that the production area seems to be gradually shifting from the eastern and southern sections of the Province to the northern and western portions.

The average output of creamery butter per plant amounted to 313,650 pounds during 1940 as compared with 309,895 pounds during 1939.

CREAM SUPPLY TO CREAMERIES

While the percentage of special cream received at the creameries was not as high as the previous year, there was a further reduction in the quantity of second grade. The following tabulation shows the quantity and quality of cream received during 1940, and similar figures have been included for the previous two years:

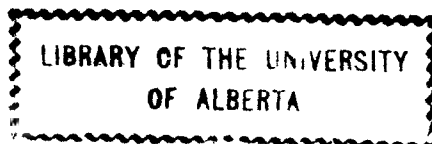
	1940		1939		1938	
	Pounds	%	Pounds	%	Pounds	%
Cream Received	73,597,277		73,530,777		77,401,690	
Average Test		(34.4)		(34.4)		(34.2)
Butter Fat:						
Table Grade	765,598	(3.0)	727,445	(2.9)	599,833	(2.3)
Special Grade	16,826,895	(66.4)	17,234,846	(68.1)	17,465,388	(65.9)
First Grade	7,097,072	(28.0)	6,625,918	(26.2)	7,529,294	(28.4)
Second Grade	613,493	(2.4)	667,439	(2.6)	807,334	(3.1)
Off Grade	44,513	(2)	35,425	(2)	89,336	(.3)
	25,347,571	(100.0)	25,291,073	(100.0)	26,491,185	(100.0)

The policy of educating the cream producers to market a sweet, clean flavoured product and receive the highest possible returns has been continued by the Dairy Branch. Bulletins, meetings and radio addresses were all used to good advantage in this campaign. Factories have been encouraged to install proper can drying equipment, and this has had an effect in reducing the amount of second grade cream with metallic flavour.

The staff of Dairy Branch Inspectors have rigidly enforced the cream grade standards during the past year. There were 1,997 visits to factories, where 89,722 shipments of cream were checked for grades, and 31,305 samples of milk and cream check tested for butterfat content.

BUTTER GRADING

The scoring and grading of creamery butter is a function of the Dominion Department of Agriculture, and the following statement



is a summary of the quantity graded and quality reported for the past six years:

FEDERAL REPORT OF CREAMERY BUTTER GRADED (PASTEURIZED)
(56 pound boxes and samples)

	Total Pounds Graded	First Grade	Second Grade	Third Grade	Below Third Grade
1935	19,081,270	83.0	10.5	6.0	.5
1936	21,584,080	87.4	7.4	4.4	.8
1937	23,553,880	87.0	7.4	4.5	1.1
1938	27,839,952	85.7	7.9	5.4	1.0
1939	27,219,976	86.9	7.0	5.4	.7
1940	27,243,216	88.1	7.1	4.4	.4

It will be noted that the percentage of first grade has again shown a slight increase. This fact merits special comment in view of the general high quality during the past few years. The field staff of Dairy Branch instructors, together with the laboratory, have made quality improvement one of their main interests. The fact that the quantity of third grade and below third grade butter has been greatly reduced would indicate that their work had been very successful.

BUTTER COMPETITIONS

Alberta again made a very creditable showing in the creamery butter classes at the leading Canadian exhibitions. Owing to war conditions, the Ottawa, London and Toronto Royal Exhibitions were not held as usual, which accounts for the somewhat reduced number of prizes. However, in the remaining seven exhibitions, viz., Vancouver, Calgary, Edmonton, Saskatoon, Regina, Brandon and Toronto, exhibits from Alberta were successful in winning 425 prizes, or 46.5% of all awards. This was the highest standing for any province in the Dominion, and those producers and manufacturers responsible for this excellent showing are to be highly commended.

DAIRY BRANCH LABORATORY

The work, conducted by Dr. J. B. Linneboe, Dairy Bacteriologist, in the Dairy Laboratory at the University, has greatly increased during 1940. There were 3,013 samples of creamery butter analyzed for mould and yeast content as compared with 2,634 samples during 1939. In addition, there was a large increase in the number of special samples analyzed. These represent a number of surveys made at plants experiencing difficulty with their products. As a result of these analyses, it has been possible to point out quickly the source of contamination and make recommendations which, when followed carefully, have resulted in a large financial saving to the industry.

During the year the Dairy Branch Laboratory installed new equipment for the incubation and propagation of cheese starters. Commencing May 15th, all cheese factories were supplied twice a month with a pure, active culture which has greatly assisted the cheesemakers in turning out a more uniform high quality product. The improvement in the quality of cheese during 1940 can, to a large degree, be attributed to the starter service.

There was a slight increase in the average mould and yeast counts of creamery butter. This can be explained by the fact that a number of new factories joined the service during the year and, without previous analyses as a guide, found it difficult at first to manufacture samples with counts sufficiently low to be classified as excellent and good.

The following table is included to indicate the trend since the commencement of this work in 1925:

Year	Number of Analyses	Av. Number of Moulds	Av. Number of Yeasts
1925	686	28	8,327
1930	2,799	25	619
1932	2,529	13	569
1934	2,128	6	207
1936	2,496	3.3	275
1937	2,529	3.0	170.2
1938	2,610	3.2	110.7
1939	2,634	2.2	74.6
1940	3,013	2.3	99.9

CHEESE FACTORIES

Eighteen cheese factories were in operation during 1940 as compared with 19 the previous year. The plants at Markerville and Wetaskiwin did not manufacture cheese during the past season. However, a new factory commenced operation at Rosemary.

The production of cheese amounted to 2,705,853 pounds, the largest in the history of the Province, and an increase of 23.2% over 1939. The cheese market remained very firm throughout the year owing to increased demand for export purposes. While no cheese from Alberta was exported to the United Kingdom, the increased supplies liberated an equal quantity of eastern cheese which formerly was required to supply this market.

A marked improvement was noted in the quality of cheese during the past year. The percentage of first grade as reported by the Federal Grading Service shows an increase of 13.8% over 1939. There were 441,692 pounds scoring 93 points, which entitled the manufacturers to a bonus of one cent per pound, as established by The Federal Cheese Factory Improvement Act of 1939.

Exhibits of Alberta cheese were again successful in winning all the prizes in the open classes at Calgary, Edmonton and Vancouver Exhibitions. One exhibit from the New Coaldale Cheese Factory was sent to the British Empire Cheese Exhibition at Belleville, where competition is particularly strong. This was awarded a third prize.

During the past year several factories have insulated and refrigerated the cheese curing rooms. This has not only assisted in improving the general quality of cheese, but makes it possible for these factories to properly mature a portion of their product.

BUTTER WEIGHING SERVICE

The Dairy Branch continued the service of check weighing 56-pound boxes of butter and the issuing of weight certificates in 1940. There were 3,506 boxes check weighed, representing a total of 26,971 boxes covered by weight certificates.

REVENUES

Revenues from creamery and cheese factory licenses amounted to \$585.00; graders' and testers' fees, \$534.00; cow testing service, \$94.00; cheeser starter service, \$74.50, making a total revenue of \$1,287.50.

The surplus from the Cream Grading Trust Account was re-funded to the creamery operators. The auditors found this Trust Account in order. Collections have been good, and there are ample reserves for bad accounts.

HERD TESTING WORK

The number of cows under test and the herd owners availing themselves of the Cow Testing Service showed very marked increases during 1940. At the end of the testing year, October 31st, 1940, there were 149 herd owners which had shown production on 1,391 cows as compared with 86 herd owners testing 856 cows a year earlier. This large increase can be traced to the fact that a Fieldman, supervising the cow testing work, was added to the staff of the Dairy Branch early in May, and also to the fact that a number of Dairy Calf Clubs included cow testing as a branch of their club activities.

The Cow Testing Supervisor made 466 visits to 340 farms, giving information as to the testing service, feeding and breeding problems, and in addition assisted the herd owners in analyzing their records, making it possible to obtain the full benefits of the service.

Due to the fact that a large number of herd owners commenced this work during the middle of the year and show production figures for only a few months, it is difficult to make comparisons with former years. However, at the testing centres and Dairy Branch Laboratory, which conducted the tests for the full period, there were 100 herds consisting of 1,003 cows under test.

The production of milk and butterfat for these herds is shown in the following table, and for the sake of comparison the figures for all cows under test during 1939 and 1938 have been included:

	1940*	1939	1938
Number of herds under test	100	86	61
Number of cows under test	1,003	856	659
Average production of milk	5,090	5,533	4,500
Average production of butterfat	193.9	210.4	168.0

*Includes only cows under test at the Dairy Laboratory and testing centres operating the full year.

INSTRUCTIONAL WORK

In addition to the regular instructional work with cheesemakers, buttermakers and groups of producers, conducted by members of the staff, this Branch again co-operated with the Dairy Department at the University in conducting a four weeks' Short Course for creamery employees.

Regional buttermakers' conferences were held at Lethbridge, Red Deer, Edmonton, and St. Paul. These meetings gave those plant men unable to attend the Convention an opportunity of hearing some of the more recent developments with respect to dairying, and also a chance to discuss problems of a more local nature. The attendance and interest at all of these meetings was exceptionally good.

DAIRY FARM STUDY

The Dairy Farm Study conducted by the Dominion and Provincial Departments of Agriculture, the Board of Utility Commissioners and the University of Alberta was continued through 1940. Farms in the area between Edmonton and Wetaskiwin, on which account books were opened in 1939, were visited periodically by the fieldmen, and the books closed as at May 31st, 1940. Ready co-operation on the part of the dairy farmers and assistance from their organizations made it possible to secure a satisfactory sample. The total number of usable accounts obtained for this first year was 236, including 47 fluid milk farms, 51 inspected cream farms, 108 churning cream farms, and 30 cheese milk farms. Considerable progress has been made on the analysis of these accounts.

It was decided to extend the study into a second year, and accounts are being continued on 213 of the previous 236 farms. In addition, 17 new accounts have been opened. The 230 accounts which may be completed at May 31st, 1941, include 61 fluid milk farms, 54 inspected cream farms, 90 churning cream farms, and 25 cheese milk farms.

STAFF CHANGES

R. P. Dixon was appointed Cow Testing Supervisor on May 20th.

R. H. Powley joined the staff on June 1st as Creamery Inspector.

L. M. Silcox, Cheese Instructor, obtained leave of absence November 1st to join the C.A.S.F. with the Edmonton Fusiliers.

DATA

The following tables set forth the details of dairy production for 1940 and statistical information concerning dairying in former years:

MONTHLY AVERAGE NET PRICES ESTIMATED PAID BY CREAMERIES IN ALBERTA
PER POUND OF BUTTER FAT IN "SPECIAL GRADE" CREAM,
F.O.B. SHIPPING POINT, FOR FOUR YEARS

	1940		1939		1938		1937	
	F.O.B. Cents	%	F.O.B. Cents	%	F.O.B. Cents	%	F.O.B. Cents	%
January	24.5	(4.5)	17.2	(4.2)	25.7	(3.8)	22.3	(3.8)
February	24.0	(4.7)	16.7	(4.0)	29.5	(3.8)	22.0	(3.8)
March	24.3	(5.0)	16.5	(4.4)	33.5	(4.5)	22.4	(3.8)
April	23.5	(5.9)	16.5	(5.9)	32.5	(6.2)	25.3	(4.4)
May	19.7	(9.5)	16.4	(10.5)	25.1	(9.6)	22.0	(8.1)
June	18.1	(15.8)	17.5	(15.6)	20.6	(15.4)	22.6	(14.5)
July	17.5	(15.6)	17.7	(16.0)	21.4	(15.8)	23.2	(15.4)
August	17.1	(13.0)	17.0	(13.1)	19.2	(13.3)	23.9	(15.3)
September	17.0	(8.9)	19.8	(9.1)	17.2	(9.9)	23.0	(11.8)
October	22.3	(6.9)	24.5	(7.2)	16.5	(8.1)	23.3	(8.6)
November	26.1	(5.3)	24.5	(5.4)	16.5	(5.3)	25.7	(6.1)
December	29.3	(4.9)	24.5	(4.6)	16.5	(4.3)	25.7	(4.4)
The Year	20.75	(100.0)	18.62	(100.0)	22.14	(100.0)	23.34	(100.0)

NOTE—The figures enclosed in brackets represent the monthly percentages of the cream receipts for the year.

CREAMERY BUTTER PRODUCTION

Year	Creameries	Pounds Butter	Selling Value	
			Total	Cents per lb.
1920	53	11,821,291	\$6,555,509	(55.45)
1925	99	19,630,101	6,959,059	(35.45)
1930	92	17,716,744	4,968,227	(28.04)
1931	93	22,957,922	4,711,231	(20.52)
1932	95	21,016,048	3,512,685	(16.71)
1933	96	23,852,350	4,308,962	(18.10)
1934	96	25,601,447	4,830,793	(18.80)
1935	97	23,094,707	4,588,917	(19.90)
1936	96	25,491,105	5,501,767	(21.60)
1937	96	26,323,562	6,449,273	(24.50)
1938	97	31,242,357	7,157,624	(22.91)
1939	96	29,749,958	6,265,341	(21.06)
1940	95	29,796,520	6,647,604	(22.31)

FACTORY CHEESE PRODUCTION

Year	Factories	Pounds Cheese	Selling Value	
			Total	Cents per lb.
1920	7	398,750	\$ 110,355	(27.70)
1925	14	1,473,835	306,604	(20.80)
1930	8	1,035,352	175,392	(16.94)
1931	10	1,040,588	118,390	(11.38)
1932	12	1,439,715	146,177	(10.15)
1933	11	1,437,387	149,593	(10.40)
1934	11	1,370,425	154,138	(11.20)
1935	11	1,364,526	168,280	(12.33)
1936	12	1,451,735	190,469	(13.00)
1937	14	1,838,589	268,434	(14.60)
1938	15	2,451,821	348,404	(14.21)
1939	19	2,196,157	264,198	(12.03)
1940	18	2,705,853	385,584	(14.25)

DEPARTMENT OF AGRICULTURE

TOTAL ANNUAL VALUE OF DAIRY PRODUCTS

1900	\$ 546,476	1933	\$12,950,000
1910	7,855,761	1934	14,391,204
1915	15,896,586	1935	14,252,500
1920	34,000,000	1936	15,505,800
1925	23,002,000	1937	17,137,900
1930	18,675,500	1938	18,587,918
1931	15,750,000	1939	18,069,733
1932	11,850,000	1940	19,532,344

MILCH COWS

Year	Cows	Year	Cows
1901	46,101	1933	406,520
1906	101,235	1934	461,700
1911	147,687	1935	464,200
1916	277,324	1936	458,200
1921	432,838	1937	453,600
1926	436,500	1938	440,900
1931	385,000	1939	429,200
1932	424,000	1940	416,800

REPORT OF FISH AND GAME COMMISSIONER

(W. H. WALLACE)

Fish, game and fur are assets of value not only in the joy of life, but also in the hard matter of dollars and cents. It does require comparisons with elsewhere for us to realize how rich and valuable is our Alberta heritage in all these natural resources. The year past has served to indicate a striking advancement in the security and wealth of our wild life and fish.

Both as regards increase in return of revenue and reports of greater numbers of the various species of wild life discovered throughout the Province, it is with pleasure I state that the year 1939-40 has been a memorable one. The future is rosy with encouragement, provided the optimum of protection is given, especially during the breeding season.

Here, as everywhere, wild life protection needs local leadership. One man with courage and force to back up his principles is worth a thousand men who agree with those principles but do nothing about it. The Alberta Fish and Game Association is one of a number of such excellent associations devoting its time and money to conservation and in assisting with its affiliate bodies in the safeguarding of our wild life and fish heritage.

The capacity of protective associations of this kind for good work is incalculable. No other influence can fully take their place. I therefore, in the first particular, desire to thank these conservation bodies for the assistance so freely given to this Division throughout the year under review.

MIGRATORY GAME BIRDS

Reports pouring into this Division indicated a steady increase in our migratory waterfowl population. Authorities in the United States computed a return of about 50% more migratory birds leaving their country for the vast breeding haunts of this Province, now considered to be the greatest individual area for the breeding of waterfowl still remaining in its pristine origin. Indeed, it may be said that Alberta practically alone so far as the Western Provinces are concerned, has contributed more to saving our migratory waterfowl than any other single natural instrument. With its enormous areas of natural sanctuary and the large created bird sanctuaries, strategically distributed throughout the Province, it can be easily understood that our winged visitors quickly react to the protection afforded. With better water conditions generally prevailing and with ample food, it requires but little in the way of imagination to realize what a number of conservation bodies throughout Canada and the United States say with truth, that Alberta is the one bright spot on the continent which is safeguarding the future supplies of all kinds of migratory waterfowl. In order to continue the protection thus afforded, the Dominion and this Government entered into an arrangement whereby a joint inspection and a report covering each of the public shooting grounds and the bird sanctuaries should be made. This report was completed in the year under review. There is now on file up to date a complete evaluation of each and every one of the foregoing for future reference and action if needed.

UPLAND GAME BIRDS

Ringed Neck Cock Pheasants.

An open season for the first time since this exotic non-indigenous bird was introduced into Alberta proved highly successful in some districts. True it is that this bird does not multiply so long as there are too many male birds, and it therefore becomes necessary to reduce these, hence the short open season permitted of two days. The maximum number of birds allowed was six birds per person. The shoot generally was well controlled by the employment of extra game guardians provided in certain key districts. There is no doubt in my mind that all species of upland game birds wintered well and greatly increased through the ideal nesting and breeding spring season which followed. Large coveys of Hungarian Partridge are the rule, and this wonderful little game bird contributes more to the pleasure of sportsmen in this Province than any other single factor during the hunting season.

Reports also indicate that there is a slow increase of the newly introduced Chukar Partridge in favoured districts. Due, however, to their tendency to scatter into districts many miles distant from where they were originally released, it is yet too early to discover whether this visitor will become as plentiful as the "hun" or as popular with our sportsmen hunter.

FUR PRODUCING ANIMALS

The total number of pelts taken during the year extending from July 1st, 1939, to June 30th, 1940, number 3,977,118 pelts, and the value totalled \$2,514,877.86.

The number of pelts disposed of shows a great increase, especially in so far as Squirrel or Mink are concerned.

The Division's programme for the conservation of our reserves of Beaver still continues along broad lines, and I am happy to say that this valuable fur-bearing animal has increased to such an extent in the last three years that its extinction becomes improbable. Whilst Beaver in moderate numbers contribute towards conserving water supplies, their increase too bring problems, and it is found that too many of these animals on any watershed constitute a menace to stock, to trees and roads. The outside field staff are now empowered to remove as many of these animals as is required, but if possible they are live-trapped and removed to districts where they no longer are to be found. Hence a conservation programme is being developed along good safe wild life management ideals.

FUR FARMING

This phase of activity continues to increase, and this report releases information that from a total of 1,060 fur farms established in the year previous, there is now in existence as at July 31, 1940, 1,234 licensed fur farms, an increase of 174 over the year previous and 481 over a two-year period.

Alberta fur farms are now firmly established, and their products are considered second to none in the markets of the world. There is no doubt that this Province with its cheap supply of food such as horse meat and fish, together with the ideal weather conditions for raising fine fur, will continue to progress along secure lines for many years to come. Exhibitions held in various parts of the Dominion and the United States invariably show Alberta fur. The

continued success of Alberta exhibitors indicates how high this Province ranks in the fur marts of the continent. Alberta ranks third amongst the provinces, and exceeded only in value and take by Ontario and Quebec.

Provincial Government Experimental Fur Farm.

This unit, situated at Oliver, has progressed along definite lines of assistance to the fur farms of the Province and to the fur trade generally. A method of exchange was adopted with benefits accruing to those about to start in the fur farm business, or who desired to obtain better breeding stock. The farm is now well stocked with good breeding stock both as regards mink and foxes.

Over 20 field days were arranged throughout the Province, and all of these were well attended and proved highly successful. These "get together" render valuable aid as a medium of exchange of data as between fur farmers and the purchasing public, and together with fur exhibitions held in the cities of Calgary and Edmonton, each year become more and more popular. It is unfortunate, however, that with the outbreak of war it may be in the interests of economy desirable to restrict such meetings to a minimum for the future. Undoubtedly, however, with the return of stabilized international conditions again, this source of community benefit will be revived.

BOUNTY ON TIMBER WOLVES, COUGAR, ETC.

A very large increase in payment of bounties may be observed, especially on Timber Wolves, detailed as follows:

566 Timber Wolves at \$10.00	\$5,660.00
67 Timber Wolf Pups at \$5.00	335.00
57 Cougar at \$20.00	1,140.00
690	\$7,135.00

The number killed in the year previous was 589 and the amount paid out as bounty reached \$5,473.00. The foregoing, therefore, indicates an increase in numbers disposed of as 101 and in bounty paid out of \$1,662.00. This is almost five times the amount paid for vermin destruction in the year 1935-1936.

DESTRUCTION OF MAGPIES AND CROWS

The result of the competition held during the year shows the following:

Crows and Magpies	89,974
Crow and Magpie eggs	130,521
Destroyed by School Children:	
Crows and Magpies	45,157
Crow and Magpie eggs	78,320
Destroyed by Adults:	
Crows and Magpies	44,817
Crow and Magpie eggs	52,201

Amount paid in prizes totalled \$3,498.50.

FISHERIES

It is with pleasure I record the following in connection with the fisheries of the Province. This report covers the period from April 1st, 1939, to that of March 31st, 1940.

During this period market conditions fluctuated from a very low price condition in the summer of 1939 to a fair price index in the period January to March of the year 1940. The number of persons employed in the fishing trade remained stationary.

Mink farming operations and other fur farm activities continued to increase, which reflected on better domestic market for

fishery products; especially is this so with regard to what is known as the disposal of the coarser varieties such as pike, tullibee and fresh water herring. All of these varieties can easily be absorbed by the fur farms of the Province. In fact, it is now difficult without serious depletion to obtain enough of these species to satisfy the increasing demand. The total amount of fish produced reached a high mark of 8,661,781 pounds with a marketable value of \$573,732.81, indicating thereby an increase of \$111,375.00 in marketable value with an increase of production amounting to 1,419,035 pounds. This is chiefly due to greater catches of tullibee, and herring absorbed by the fur farm trade activity.

SPORT GAME FISHING

Continued reports of better fishing reached headquarters throughout most of the season, and especially was this true of such rivers and lakes as Kananaskis, Highwood and tributaries, Raven, Castle, Oldman and Waterton River, all excellent game fish streams which show good improvement throughout. Large catches of Rocky Mountain whitefish in the Fall was the general rule, and it is evident that the size, quality and number of trout caught showed the results of our fingerling stocking the year previous.

Equipment.

Fishermen again purchased but little new equipment outside of nets, twine, and other direct fishing needs. Few, if any, new boats, ice houses or other heavy equipment was observed. There is now more of a tendency on the part of commercial fishermen to build their own boats, which are constructed to suit the local conditions applicable in shallow or deep lakes, as the case might be. Only one of these boats was observed as being built during the past year.

Commercial Fishing.

Lakes where heavy production was evident during the year 1939-1940 was Cold, Newell, Pigeon and Buck. The condition of Cold Lake so far as the production of whitefish is concerned, is particularly gratifying. The fish caught in this lake are of an excellent size and flavour, and good prices were generally obtained in the markets of the United States. Over half a million pounds of whitefish were caught and sold from this lake alone during the winter months. Lesser Slave Lake produced an average catch, and although it is undoubted a much heavier production could be obtained, it was found that the market could not have absorbed any further quantity, hence the fishermen refrained from heavy fishing during most of the fishing season. Also for a period of two weeks heavy storms were encountered and fishing hazardous in the extreme. Those who fished lost most of their boats and gear, and indeed it was only by a miracle that loss of life was prevented.

Markets.

Culled from reports received through various marketing agencies in the United States, information is released to the various fishermen's associations, and this helps materially. However, the practice in use by importing firms in the United States of delaying acceptance of car load lots of fish when it suits their purpose and the resultant loss in the standard of the product, which is highly perishable, frequently militates against firm prices and is always to the disadvantage of the fisherman or producer, who stand all losses.

Improvement in business ethics by the import end is slow indeed, and it is evident that our export market is subject, with respect to Alberta products at least, to unorthodox practices when the occasion arises. It cannot be said that our export trade in fresh water fish products from Alberta was any too strong throughout the entire year under review. This condition has applied too long to the unquestioned distress of those who rely on fishing for their sole source of income, namely, the commercial fisherman.

Domestic Fishing Market.

This market has been considerably strengthened by the unusual demand from fur farmers throughout Alberta. This has helped our commercial fishermen through a long period of tough years. Farmers, Indians and the Metis still continue to remove large quantities of fish for home consumption, which reached an estimated quantity of 250,000 pounds with a valuation of \$16,000.00. This indicates a slight increase in production and value over the year previous.

Indian Fishing.

The estimated quantity of fish taken by the close to one thousand Indian families of the Province interested in fishing for their own consumption and for dog teams utilized in fur trapping during the year under review amounted to 890,000 pounds with a valuation estimated at close to \$45,000.00.

LICENSES AND PERMITS ISSUED			
	Number	Decrease	Increase
Domestic Licenses	265		8
Fisherman's and Commercial Licenses	1,902	394	
Angling Permits sold by Fishery and Forestry Divisions	5,508		1
Indian Permits	869	71	
Boat Licenses	11	16	
	8,555	481	9

—a net decrease for the year of 472.

Angling.

Fish caught by angling is estimated as follows:

	Pounds
Trout (all kinds)	211,000
Rocky Mountain Whitefish	96,000
Arctic Grayling	30,000
Goldeye	12,000
Pickereel	60,000
Perch	424,000
Pike	400,000
Sturgeon	1,000
Chub	6,000
	<u>1,240,000</u>

—indicating an increase of 140,000 pounds. The value of the catch is estimated at \$60,000.00.

Observance of the Regulations.

During the period under review the number of cases brought to trial numbered 134, successfully convicted of which were 130 and dismissed 4. Confiscated articles numbered 119 during the same period. Prosecuted cases increased by 48, and the number of confiscations increased by 3.

Fish Culture.

Details of the distribution of fry, etc., from the various hatcheries into water outside the National Parks follow:

LESSER SLAVE LAKE HATCHERY—CANYON CREEK	
Whitefish (eyed eggs)	81,514,000 distributed in 21 lakes
Whitefish fertilized eggs	5,000,000 distributed in 1 lake
Whitefish fry	2,500,000 distributed in 1 lake
Total	<u>89,014,000 distributed in 23 lakes</u>

—an increase of 28,544,000 eggs and fry planted. This was primarily due to the excellent spawn take at Utikumasis Lake during the fall previous and the great care taken at the hatchery to ensure proper hatching conditions.

GAME FISH FRY AND FINGERLINGS DISTRIBUTED BY HATCHERIES	
Banff Hatchery	645,603
Waterton Hatchery	662,340
Lesser Slave Lake Hatchery	330,853
Total	<u>1,638,796</u>

NUMBER OF PROVINCIAL WATERS STOCKED	
Eyed eggs(commercial fish)	21
Fertilized eggs (commercial fish)	1
Fry (game fish, etc.)	3
Advanced fry (game fish)	2
No. 1 Fingerlings (game fish)	44
No. 2 Fingerlings (game fish)	10
No. 3 Fingerlings (game fish)	19
No. 4 Fingerlings (game fish)	36
Adult fish	11
Total	<u>147</u>

REPORT OF THE POULTRY COMMISSIONER

(C. W. TRAVES)

A large percentage of those engaged in the production and marketing of poultry and poultry products in Canada started the year 1940 with grave concern as to the future. Although the British market showed quite good prospects from the egg standpoint, the prospect of shipping poultry meat was very discouraging despite the fact that permits could still be obtained in Britain to ship up to 50% of the pre-war volume. The price received by the producer for eggs showed the usual unwarranted early declines, and stocks of poultry meat in storage showed a steady increase in volume, but the general pessimistic attitude adopted by many in the trade was not altogether justified, as unemployment was definitely on the drop and purchasing power steadily rising, largely due to increased industrial expansion, and certainly the poultry meat in storage did not go in at prices which could by any means be considered as being unduly high. This was proven by the fact that there were not enough turkeys in storage to supply the Easter trade requirements.

The year had not progressed very far when it became quite evident that not only was there a definite improvement on the domestic markets, but that Britain very definitely wanted our eggs, and in spite of an absolute lack of any worth-while effort on the part of the Dominion and Provincial Governments, the trade interests were able to ship to Britain more than ten times the number of eggs ever shipped in any one year previous to 1940. The only thing that held up a still greater volume of export, was the absolute lack of surplus co-ordination. Despite these conditions, the local markets did not strengthen as they should have, and while the trade interests enjoyed a Roman holiday on their storage stocks, the producers continued to hold the bag until early in the Fall when prices rose rapidly, and from then until the middle of December they enjoyed prices averaging about 2 cents per dozen over the previous year's average for that period. However, prices started their usual rapid decline and show every indication of being definitely on the toboggan before there is any real necessity for so being. It can be stated quite definitely that the poultry industry will never assume its rightful position in Canadian agriculture until all governments concerned awake to the realization that it is not merely a sideline of agriculture, but an industry worthy of equal recognition and organization as is being rendered to dairying, bacon production or the other phases of agriculture of which we have heard so much in recent years, and more especially since the commencement of hostilities.

MARKET CONTROL

When our 1939 report was written, a poultry committee was working on a proposed scheme for the Department of Trade and Industry, under the provisions of "The Alberta Marketing Act". This committee was largely under the direction of the Poultry Branch of the Department of Agriculture, and practically all the arrangements for the organization and the holding of the plebiscite was left to us. The fact that the producers voted 92% in favour of

the scheme afforded us some measure of satisfaction, although it meant increased demands for our services with prospects of a still greater increase to come. If any measure of control can be accomplished by the elimination of abuses for the betterment of legitimate trade interests and an increase in the percentage of the consumers' dollar received by the producers, the effort will have been worth while.

The Annual Reports for 1938 and 1939 pointed out the need for an "Alberta Poultrymen's Act". The more we study licensing, marketing, hatchery approval, disease control and all the other features of the poultry industry, the more we are convinced of the need for such an Act. Until poultry is recognized by the powers-that-be as an industry and not as something else, as at present, it will continue to be just that—something else. Let us hope that the day of recognition is not too far distant.

BLOOD TESTING AND FLOCK APPROVAL

Our blood testing and flock approval programme has been progressing satisfactorily with definite improvement in the quality of the stock being evident. Complaints received by this Branch and by the Dominion Marketing Service officials in Alberta during the 1940 hatching season were a very small percentage of those usually received, showing evidence of a higher standard of chicks being sold and the fruits of educational work along better brooding management lines.

We again carried on comparative blood test work as between the Tube Agglutination Test as approved by Ottawa and the Whole Blood, or Rapid Agglutination Test as advocated by the Poultry Branch, only this year the work was considered official, as Ottawa agreed to co-operate in the work. Without hesitation or fear of contradiction, we can say that we proved our contention that our method was at least equal in its accuracy with the one Ottawa insists on, and in addition, that it saved the Alberta Department of Agriculture and the Alberta flock owners a great deal of money and inconvenience. Despite this, it appears that Alberta chicks are to be again shut out of the Provinces of Saskatchewan and Manitoba and any other province that Ottawa can persuade into accepting their present attitude on this matter.

At present the work conducted has been written up in scientific form to be published in a scientific journal. Once this is done, it should be published in a more popular form.

ALBERTA HATCHING EGG PRODUCERS' ASSOCIATION

The owners of approved flocks under the Hatchery Approval Policy have struggled for some years to organize. This Branch gave them every assistance the last two years, and now the organization comprises over 90% of the shippers. It is the only organization of its kind in Canada and, due to the close co-operation and friendly spirit existing between it and Alberta hatcherymen, it has obtained for its members the second highest average price for hatchery eggs of any province in Canada, Quebec producers receiving the highest average price. There the hatcheries are almost entirely on a strict co-operative basis.

As the hatcherymen of the four Western Provinces have organized into an association, the Alberta Egg Producers' Association circulated the producers of the other three provinces, asking them to

form similar organizations. It will be interesting to follow developments.

ALBERTA TURKEY BREEDERS' ASSOCIATION

In the Alberta Turkey Breeders' Association we have another poultry organization unique in Canada. Until one year ago it was limited to the raisers of the Bronze breed of turkeys, but at the meeting held in Edmonton last January they dropped the word "Bronze," and this allowed raisers of any standard breed of turkeys to become members. All owners whose flocks are banded under Alberta's "Record of Merit" are members of the association, which has very strict rules, and all sell the various grades of males and females at a uniform price.

The fact that producers and officials of neighbouring provinces have asked for full data on our marketing scheme, the Hatching Egg Producers' Association and the Alberta Turkey Breeders' Association, with a view to organizing similar associations in their own province, speaks well for the work being accomplished along these lines in Alberta.

PROVINCIAL POULTRY PLANT

Due to the late spring, the Institute farm manager was not able to do our spring plowing and summer cultivation at the time it should have been done, consequently the turkey range was not ready for the poults, and we had to cut down on the number hatched. However, we have since purchased a tractor, so will in future be able to do our own cultivation at the proper time, weather permitting, and in addition, will be able to move the brooder and range houses at definite intervals.

Following out the practice of the last two years, we have systematically studied our pedigree records and have disposed of all birds from undesirable family lines. This has reduced the laying stock being carried to a minimum with a corresponding drop in revenue, but also has resulted in a saving in feed required and labour used on the birds, leaving the help free to do much needed improvement and repair work. The stock and their pedigrees, particularly the Leghorn breed, show very decided improvement, and the general appearance of the farm has taken on a more pleasing appearance.

Although more brooder and range house accommodation was supplied, if we are to do the work expected, additional houses are required. With the expansion of the Oliver Mental Institute, we will be expected to supply more eggs, and we have barely enough accommodation at the present time to fill present needs and supply hatching eggs; in fact, during the spring and summer we have not filled their requirements due to cutting down on the stock. In addition, we are expected to raise from 500 to 600 pullets for the Vermilion and Olds Schools of Agriculture. This is physically impossible under present conditions, and this does not take into account the necessary turkey breeding and rearing expected of us.

The Provincial Poultry Plant is rapidly rounding into one of the best of its kind in Canada, and it is to be hoped that now that we are approaching the stage of maximum production and revenue, this work will not be handicapped through lack of necessary accommodation.

PUBLICATIONS

As the supply of the bulletin "Poultry Diseases in Alberta" was nearly exhausted, it was decided that such a publication was too expensive and detailed for the average farmer, especially where usually only one or two subjects were to be covered at a time. In co-operation with Dr. T. L. Jones, of the Provincial Veterinary Laboratory, the various diseases and parasites were segregated into classes, and the following leaflets published:

- Leaflet No. 25—"Pullorum Disease in Chicks".
- Leaflet No. 26—"Poultry Feeding Formulae".
- Leaflet No. 27—"Poultry Farm Sanitation".
- Leaflet No. 28—"Tuberculosis of Poultry".
- Leaflet No. 29—"External Parasites of Poultry".
- Leaflet No. 30—"Internal Parasites of Poultry".
- Leaflet No. 31—"Coccidiosis".
- Leaflet No. 32—"Respiratory Diseases of Poultry".

REPORT OF THE ANIMAL PATHOLOGIST

(T. LLOYD JONES)

The Veterinary Laboratory was established early in 1940. The space provided for it was partitioned into offices, a well-equipped general laboratory, post-mortem room, photographic dark room, and a room to house experimental animals.

This new branch was created to assist in reducing the losses due to disease among live stock in Alberta. The work is being directed along the following lines:

1. A diagnostic laboratory service is provided for the examination of specimens brought in by the Provincial Veterinarian, practicing veterinary surgeons, and farmers.
2. Outbreaks of disease are investigated in the field, and these are followed up with research work in the laboratory.
3. Information regarding the prevention of live stock diseases is disseminated through co-operation with the Extension Branch.

DIAGNOSTIC SERVICE

Considering the short time the laboratory has been in operation, good use has been made of the diagnostic service, especially by farmers in districts where there are no veterinary surgeons.

When the laboratory examination of a specimen is complete, a report is sent giving advice regarding the methods of preventing the disease in question. It is often considered advisable to suggest calling in the local veterinarian, if one is available, but in many districts where there are no veterinary practitioners, farmers are given information on the treatment of the particular condition so far as it is likely to be successful in lay hands. It is the policy of the Department of Agriculture to co-operate with the veterinary surgeons, and they are encouraged to send in specimens and seek advice on conditions which present difficulty in diagnosis.

The number and nature of specimens that have been examined are recorded in the table accompanying this report. Most of these specimens have involved a careful and complete post-mortem examination. A few of them were sent in as affected portions of carcasses. Bacteriological examination is made if this is required in arriving at a diagnosis. It is unfortunate that some of the material is putrid on arrival at the laboratory. In such cases, an unsatisfactory report is usually sent to this effect: "Contamination was present to such an extent that it was impossible to make an accurate diagnosis."

INVESTIGATIONAL WORK

Investigational and research work is of considerable importance to this branch. A great amount of study is warranted even in some of the diseases that are fairly common. The nature of the work to be done will be governed by the time and money available, and by the relative importance of the problems that are presented.

SWINE

A number of visits have been made to farms where disease outbreaks have been reported. These visits are part of a survey that we are making in order to become acquainted with conditions of feeding and management. After observing conditions on many farms and after examination of a number of pigs sent in to the

laboratory, we are convinced that serious losses are occurring from errors in feeding and inadequate housing.

There is a paucity of information regarding the value of bacterins in the prevention and cure of swine diseases. The indiscriminate use of bacterins is illogical and often harmful, but it is possible that they might have a place in a swine-raising programme which includes a number of practices for the prevention of common diseases. We have begun such a programme on a number of farms, under conditions that are entirely practical for any swine husbandman.

FUR-BEARING ANIMALS

Soon after the laboratory was established, contact was made with several fur ranchers. This led to an investigation into a serious defect which is found in some male foxes. During the breeding season we had an opportunity to determine the value of hormone therapy to overcome impotence in fox sires. The hormone used (Perandren) was found to be effective in overcoming this defect. This finding was reported in the Canadian Journal of Comparative Medicine, October, 1940, in an article bearing the title, "Treatment of Impotence in Male Foxes with a Synthetic Hormone."

Later in the season we were asked to investigate a serious disease among ranch-raised mink in the vicinity of Lesser Slave Lake. Losses had been heavy during 1939, and there was much speculation regarding the cause of the trouble. In 1940 the disease was responsible for a heavy mortality before our advice was sought. A visit to the district gave us an opportunity to obtain a history and to observe symptoms shown by the affected mink. There was strong evidence of distemper, and we were able to make a definite diagnosis by reproducing the disease in fitch at the laboratory.

It was decided to try a tissue vaccine in an effort to control the outbreak, but the preparation of a safe vaccine entailed a lot of laboratory work. By the time the vaccine was ready to use, the disease was well established. It was not possible, therefore, to give vaccination a fair trial because it is least satisfactory when there is a high percentage of infected animals on the ranch. Where the vaccine was used, most ranchers reported a marked decrease in the number of deaths after a suitable period had elapsed from the time of inoculation. It is highly likely that the injection of a formalized tissue vaccine early in an outbreak would greatly reduce the losses from this disease.

POULTRY

In Alberta, tuberculosis is a common disease in poultry and swine. Swine usually become infected from poultry, and it is possible to reduce the incidence of tuberculosis in both of these species by controlling the infection in poultry. The likelihood of infected birds sensitizing cattle to the tuberculin test is further cause for attempting to control this disease in poultry flocks.

In co-operation with the Poultry Branch, we are gathering data on the incidence of this disease in different parts of the Province as part of a project to control the infection.

There are other diseases in poultry which must be given some attention. The table synopsizing the findings of our diagnostic service does not indicate the relative incidence of the various diseases in the Province, but it has at least the qualitative value of showing that such serious diseases as laryngotracheitis and fowl paralysis exist in Alberta. Coccidiosis was common this year because of the prolonged wet spring.

OTHER SPECIES

Specimens which are received for laboratory examination furnish suitable material for minor research projects. A variety of animal species are worked with in this way. Information is accumulated by following cases up in the field when this is warranted.

EXTENSION WORK

As time permits, we are anxious to co-operate with the Extension Branch in an effort to bridge the gap between that which is known regarding prevention of disease and the application of such knowledge by the farmer.

Assistance is also given to the Extension Branch in providing material for visual instruction. Photographs, lantern slides, and material for motion picture films are made in the dark room housed in the laboratory.

Nature of Disease	Horses	Cattle	Sheep	Swine	Fox	Mink	Nutria	Beaver	Raccoon	Marten	Dog	Chicken	Turkey	Peacock	Duck	Rabbit	Total
Abscess		2				7						1					10
Actinobacillosis			1														1
Anaemia				10		13											23
Arthritis				1													1
Aspergillosis												1					1
Avitaminosis				4								7	1				12
Blackhead													1				1
Botryomycosis	1																1
Calculi						5											5
"Crazy Chick" Disease												3					3
Coccidiosis						3						106					109
Corynebacterium Infection		2	2	2													6
Coryza												14					14
Cow Pox		2															2
Crop Bound												1					1
Distemper						54											54
Gastritis and Enteritis	1			33	1	6				1							42
Errors in Feeding				13	4	41						4					62
Erysipelas				2													2
Faecal Tests	1	1			8			1			3						14
Food Poisoning						20											20
Fowl Cholera												5					5
Fowl Paralysis												25					25
Hydronephrosis				1													1
Infection of New- born				6													6
Internal Parasites	2		2	22	6						2	12			1		47
Laryngotracheitis												6					6
Leucosis												6					6
Leukaemia				1													1
Mange				1													1
Mastitis		6															6
Melanosis		1															1
Milk Fever						5											5
Myiasis						2											2
Necrotic Enteritis & Pig Pellagra				18													18
Neoplasm											3	2					5
Overheating in Brooder													2				2
Paraphimosis						2						2					2
Paratyphoid					6												6
Pasteurella Infection		8		50													58
Pediculosis		6										3					9
Pneumonia				25	3	16	3	1	1								49
Poisoning				9		1					1						11
Preputial Catarrh		1															1
Pullorum Disease												30	2				32
Rickets				2													2
Septicaemia				11		3											14
Skin Scrapings		3			6						2						11
Swine Flu				4													4
Tail Chewing					3	5											8
Tuberculosis		16										14	1	1			32
Vaginitis																1	1
Visceral Gout												3	1				4
Miscellaneous	2	2		8		3					5		1				21
No evidence of Dis- ease or Putrid	7	1	2	3	1	4						5					23
	14	51	7	226	38	190	3	2	1	1	16	250	7	1	1	1	809

REPORT OF THE PROVINCIAL APIARIST

(W. G. LE MAISTRE)

The beekeeper has had a disappointing year. The average yield per colony was only 101 pounds, which is 30% below normal. Added to this small crop have been some increases in costs. Though the domestic price has increased by about 37%, this price increase did not compensate the beekeeper for his small crop.

Some producers anticipated exporting to the United Kingdom at fair prices, but late in the season the Ministry of Food introduced import restrictions that prevented Alberta producers entering this market. However, since the honey crop the Dominion over was 25% below normal, the Canadian markets readily absorbed the output at prices approximating those offered on the export market.

A review of the trend of the industry would indicate a greater increase of sideline beekeepers than of commercial honey producers.

The number of commercial beekeepers in southern Alberta has not increased materially in the past year, though some have increased the number of hives kept. The number of beekeepers in the central and northerly parts of the Province has increased. There are not yet sufficient commercial producers in these more northerly districts to establish the suitability of the territory to commercial operation.

The acreage of sweet clover, the main honey-producing plant, is on the decline. Alfalfa acreages in some of the irrigated districts have declined. There have been significant increases in the acreages of alfalfa and other clovers in central and northerly districts—Altaswede clover has not yet been established as a honey plant.

The spring weather and flora were favourable to bees, early honey flows supplying the necessary food for early brood rearing. Less artificial feeding was required than in 1939. During the month of July, with the exception of one or two districts, there was much unsuitable weather for bees and nectar secretion. It was far too wet.

Package-bee importations have increased somewhat over last year. There have been some reports of packages arriving in poor condition. Improper train connections have resulted in some packages spending nine days in transit. It is estimated that about 10% of the queens coming in packages were superseded, turned drone-layers, or disappeared, in 1940, compared to less than 5% in 1939. On the whole, however, packages had established themselves as very good colonies by the time of the main honey flow.

Wintered hives (1939-40) suffered about a 25% mortality. The majority of losses were the result of insufficient winter feed. Colonies that survived were amongst the highest producers.

There is a considerable increase in the number of beekeepers wintering hives this winter (1940-41). Many of these hives are insufficiently provided with stores, and a high mortality can therefore be expected.

PRODUCTION

	1939	1940
Honey produced, lbs.	2,178,000	2,222,000
Beeswax produced, lbs.	28,300	33,300
Value of Honey	\$176,400	\$244,420
Value of Beeswax	\$ 7,600	\$ 9,000
Value of Honey and Beeswax	\$184,000	\$253,000
Average price to producer	8c	11c
Average production per hive, lbs. (8-year average—138 lbs.)	121	101
Number of Beekeepers	1,600	2,200
Number of Hives	18,000	22,000

The production per colony of 101 pounds is the lowest since 1935, and 37 pounds below average for the last eight years. The fact that the total production (2,222,000 lbs.) is 1% above last year's is accounted for by the considerable increase (4,000) in the number of hives in the Province this year. The total value of honey and beeswax slightly exceeds a quarter of a million dollars. This very considerable increase is partly accounted for by the improvement in price.

As evidence of the good quality of the honey is the fact that it usually obtains the highest price of all honeys in competitive markets.

MARKETING

In August, the Alberta Beekeepers' Association marketing committee suggested opening prices on honey delivered to the wholesaler of \$5.50 per case (48 lbs.) for eight-pound pails; \$5.75 per case for four-pound tins, and \$6.00 per case for two-pound tins. Some sales were made immediately at these prices. Later, a few operators offered a 25c per case discount on these prices, but sales were slow all fall. Early winter saw a renewed interest in honey, and nearly all the commercial honey was out of beekeepers' hands by December, having being sold at opening prices.

Several beekeepers had anticipated shipping honey to the United Kingdom. Just prior to shipping dates, importers in the United Kingdom were limited to those amounts received for the twelve-month period prior to the outbreak of war. This regulation prevented Alberta honey going forward to this market. A large amount of Alberta honey did find markets outside the Province. Some of this was sold in Saskatchewan, but most of it went to British Columbia. There seems to be a good demand for Alberta honey at top market prices.

The beekeeper having the greatest difficulty in disposing of his crop is the L.C.L. producer. He often has more than his local market will absorb, and then finds that wholesalers are not very keen to handle small lots.

A co-operative organization has been formed to take care of this situation. At present, it would appear that there was an insufficient volume of honey amongst the L.C.L. producers to operate such an organization efficiently. Several smaller producers would increase the scale of their operations considerably if there was a marketing organization to handle their product when it was extracted. Established carlot producers are not likely to change their present method of selling as long as they are getting fair returns.

There has been no competition from honey shipped into Alberta this year. None was shipped in until local supplies had dwindled.

DISEASE CONTROL

	1939	1940
Number of apiaries inspected	1,021	844
Number of colonies inspected	6,423	5,876
Number of colonies diseased	319	228
Percentage of inspected colonies diseased	5%	3.9%
Percentage of all colonies diseased	2.1%	1.1%
Number of beekeepers registered	1,589	1,834
Number of colonies registered	15,419	18,033
Number of beekeepers not registered (estimated)	900	400
Number of colonies not registered (estimated)	4,200	4,000
Percentage of beekeepers not registered (estimated)	36%	18%

The importance of disease-control cannot be over-emphasized. Beekeeping becomes impossible where American Foul Brood remains uncontrolled. Though the figures show a reduction of the amount of American Foul Brood disease, it is questionable whether, in the long run, with the existing staff, it is going to be possible to prevent the spread of this disease. At present, seven part-time inspectors are employed. It would be possible to inspect more thoroughly and more economically were the staff of inspectors increased. It has been necessary for this Branch to train some men, as there do not appear to be any men available having the necessary qualifications. It is suggested, therefore, that since the number of beekeepers is continuing to increase rapidly, more inspectors be trained for this part-time work. There is cause for apprehension because of the outbreak of disease in four new districts, and because of the rapid expansion of the industry (4,000 hives in 1940).

A diagnostic service is maintained by which samples from colonies suspected of disease are examined and the sender advised of the steps to be taken in its elimination. In 1939 there were 23 diagnoses, and in 1940 there were 84.

To facilitate inspection all beekeepers are required to register with the Department. In 1940 it is estimated that 82% of those keeping bees were registered, contrasting with only 64% in 1939.

EXTENSION

Instruction and addresses were given at 49 field days, also at meetings and clubs, at which more than 1,800 people attended. With the kind co-operation of the University authorities, a five-day short course was given at the University of Alberta. Fifty-four people were registered. A course of lectures in apiculture was delivered to the students at the Vermilion School of Agriculture.

About 600 bulletins entitled "Beekeeping in Alberta" were supplied on request. A leaflet entitled "Hints to Beginners in Beekeeping" was published. Mimeographs on two other topics were written. These leaflets proved popular and often obviated the necessity of distributing the more costly bulletin.

Some radio talks on general beekeeping were delivered. Special attention was directed towards wintering bees.

A demonstration and experimental apiary is maintained at the Vermilion School of Agriculture. Some useful experimental results and data are obtained from this apiary. Wintering experiments especially have demonstrated that beekeepers would be well advised to winter their bees. A properly-equipped honey house would be an asset to this apiary.

Judges were provided for five competitive honey displays.

The duties of secretary-treasurer for the Alberta Beekeepers' Association are undertaken by this Branch. A good deal of correspondence and organization work is entailed. Assistance to district associations is given and market information is disseminated.

REPORT OF THE EXTENSION SERVICE

(R. M. PUTNAM, *Director*)

The Agricultural Extension Branch continued its policy of service to the people of rural Alberta in 1940. Through many methods, including meetings, short courses, field days, demonstrations, publications, agricultural and school fairs, practical information relating to agriculture and home economics was distributed to the people in the Province.

Information on production problems continued to be most in demand, but there was a growing desire for more knowledge on subjects related to home improvement, i.e., farmstead planning, fruit growing, ice wells and the like. More and more rural people are adopting a "whole farm" approach to the solution of their problems, and they are seeking to obtain a balance in agriculture through long time planning.

While the war has created some specific agricultural problems, one of the most acute for farmers is that feeling of perplexity which has arisen due to the many sudden changes in the course of the war and their effects on the demand for agricultural products. As long as such conditions exist, it is difficult to advise farmers of the policy to adopt, but adherence to sound principles of crop and live stock production, improvement of quality of produce and soil conservation are desirable practices under any conditions.

Organizations are doing a great deal in some districts to focus attention on local problems. It is the aim of the Extension Branch to co-operate with such groups in every way possible and to assist them with the activities they undertake to solve these problems. There is a place among the many organizations in this Province for one which will study specific local agricultural matters. Far too little use is being made of the community meeting in which farmers may exchange ideas and experiences to the mutual advantage of each.

The Extension Branch is most grateful for the assistance that has been rendered during the year by all who have taken part in its activities. Special appreciation is tendered to the staff of the Faculty of Agriculture, University of Alberta, and to the officers of the various services of the Dominion Department of Agriculture, whose valuable aid was so freely given. Acknowledgment for helpful co-operation from many local organizations and institutions throughout the Province is also expressed. Last, but not least, are the officials of the Department of Agriculture, whose helpful suggestions and assistance were at all times wholeheartedly contributed.

EXTENSION FIELDMEN

Three extension fieldmen were employed by this Branch during the summer months. From June 1st to November 30th one of these men carried on general extension work similar to the District Agriculturist activities in the territory west of Edmonton.

Two instructors in farm mechanics at the Schools of Agriculture were engaged in farm mechanics extension work from May 1st to August 31st.

In the territory west of Edmonton the extension fieldmen supervised the Junior Club programme, held a number of meetings, gave assistance to local organizations, and served the district in a general way. In addition to this area, the fieldman visited the Falher-Girouxville district on several occasions to supervise the Junior Club activities and to give general agricultural assistance to the farmers in that area.

The extension programme in farm mechanics was the first of its kind offered in this Province. It consisted mainly of field days, planned to demonstrate to farmers the value of proper adjustments in ploughs, discs, mowers and other farm machinery, using therefor a dynamometer to measure draft.

In addition to this, fuel tests, draw-bar tests, slippage tests and other demonstrations were carried on with farm tractors.

These services were supplemented by a survey to determine tractor operating costs, and the fieldmen gave demonstrations at a number of ploughing matches and other events. The response to this programme was enthusiastic, and very good attendances were reported. A desire for more work of a similar nature was expressed. During the summer 26 field days were held, with an average attendance of nearly 100.

The investment in farm machinery in Alberta in 1936 was about \$80,000,000, and it would appear that a programme which offered suggestions that would lower the operating costs of this equipment would be justified.

Furthermore, there is a growing demand for information on farm buildings, electric fences, wind chargers, ventilation, insulation, etc. Brief reference to these subjects at field days this year leaves no doubt of the interest farmers are taking in these matters.

PUBLICATIONS AND STATISTICS

Twenty-two new publications in the form of bulletins, circulars and leaflets were issued in 1940. In addition, 11 earlier publications were reprinted, and 9,000 plans of poultry buildings were published. The new publications were as follows:

- Cir. 13—Swine Parasites.
- Cir. 14—Eradicate the Warble Fly.
- Cir. 15—Care and Management of the Brood Mare During Gestation Period.
- Bul. 16—Home Decoration.
- Bul. 17—The Value and Use of Milk.
- Bul. 18—Meat Cookery.
- Bul. 19—Variety in the Use of Vegetables.
- Cir. 20—The Prevention of Anaemia in Suckling Pigs.
- Leaf. 21—Melilot Taint.
- Bul. 22—Potato Production in Alberta.
- Cir. 23—Hints to Beginners in Beekeeping.
- Cir. 24—Seeding Forage Crops.
- Leaf. 25—Pullorum Disease in Chicks.
- Leaf. 26—Poultry Feeding Formulae.
- Leaf. 27—Poultry Farm Sanitation.
- Leaf. 28—Tuberculosis of Poultry.
- Leaf. 29—External Parasites of Poultry.
- Leaf. 30—Internal Parasites of Poultry.
- Leaf. 31—Coccidiosis.
- Leaf. 32—Respiratory Diseases of Poultry.
- Bul. 33—Four Bad Weeds.
- Cir. 34—Suggestions for Storing Grain Crops on the Farm.

Annual Report for the Department of Agriculture was issued in the usual way. Throughout the summer months a crop reporting service was conducted and 10 crop reports were issued, followed

in October by an "Autumn Survey of Agriculture with a Statistical Summary."

The Department of Agriculture Notes were issued weekly throughout the year. These Notes, containing practical information for farmers, are used to a considerable extent by local newspapers.

The Farm Club Bulletin was issued quarterly for members of the Junior Clubs.

A number of mimeographs were published dealing with special, timely topics pertaining to agriculture and home economics.

Individual requests for information are numerous; these are answered as adequately as facilities permit. Some indication of the distribution of publications may be obtained from the fact that during the year approximately 3,000 persons wrote letters for bulletins, and each requested an average of five publications. In this way, and through other channels, it is estimated that about 65,000 publications were distributed in 1940.

STATISTICS

Arrangements for collecting statistical information relating to agriculture remain with the Dominion Bureau of Statistics, with which this Branch co-operates. In January a statistical summary of production for 1939 was issued and numerous requests for various statistics were answered throughout the year. A number of releases of a statistical nature were included in the Agricultural Notes.

There is need for more statistical information on agriculture, especially at this time when production is so greatly determined by events in Europe.

RADIO

Officials of the Alberta Department of Agriculture contributed to the Farm Forum programme over CKUA and conducted the Junior Farm Forum during the year. On the senior programme 24 talks were given, and 30 broadcasts were arranged for the Junior Farm Forum.

The radio was also used to a limited extent to advertise meetings, short courses and other functions of a similar nature.

VISUAL INSTRUCTION

The visual instruction equipment was used extensively in 1940. Officials of the Department used the equipment a great deal at Schools of Agriculture, meetings, short courses and other gatherings. This equipment is of much assistance in teaching, in that it permits pictures being shown of approved principles and practices, and it may also be used to provide entertainment.

During the year some new equipment was purchased. This included one tri-purpose film projector, one motion picture camera and one animatophone (sound projector). Ten film strips were made by the Branch, and five movie films were completed. From other sources one film and 18 film strips were purchased. More motion pictures and film strips depicting conditions in Alberta are needed.

Although many good films may be obtained from Canadian and United States sources, these are frequently of a character unsuited to Alberta conditions, and are therefore not altogether satisfactory for our purpose.

The visual instruction equipment was used on many occasions. Motion pictures were shown 300 times, film strips on about 400 occasions. The public address system was used at about a dozen meetings during the summer. It is particularly useful at large outdoor gatherings.

All of this equipment is of much advantage to the extension workers. The mind absorbs ideas and knowledge more readily when the information is presented to two or more of the senses. This is especially true of young people, and hence this equipment is widely used in connection with Junior Club programmes.

SHORT COURSES

The number of short courses and agricultural meetings held during January, February and March was greatly in excess of those held the previous year. A mild winter and a demand for information about Canada's war effort were the main reasons for the increase.

The Alberta Agricultural Production Committee requested this Branch to sponsor meetings to discuss Canada's war effort and the agricultural situation, with particular reference to swine production. To meet this request, a large number of meetings were planned.

During the year a total of 105 meetings and two-day agricultural short courses were held. Attendance varied from 15 to 600, the average being about 66. Ten of the 105 meetings were of two days' duration. In addition to these gatherings, many other small meetings were held by District Agriculturists.

This form of extension work appears to have a popular appeal during the winter season when farmers can get together to discuss their problems. Through these meetings the latest developments in agricultural science can be passed on to the farmers, and they in turn may discuss the problems which face them and suggest topics for investigation by experimental farms and other institutions.

At 17 of the short courses a demonstrator was supplied to speak to the ladies. In a number of cases the women's meeting was almost as large as that held by the men.

Speakers for these short courses are generally officers from the Department of Agriculture, but much valuable assistance is also provided by the staff of the University of Alberta, officials of the Department of Agriculture and other individuals.

FIELD DAYS

Field days were the most popular extension activity of the summer months. Under the direction of officers of the Department of Agriculture, 77 field days were held in 1940. In addition to these, there were about 40 field days organized by Dominion Department officials, the Crop Testing Plan and the North West Line Elevators Association. There were also numerous small meetings, such as Junior Club field days, with only District Agriculturists in attendance.

A field day is a valuable type of meeting held "on the ground" with crops and live stock for demonstration purposes. It becomes a practical demonstration that is educational and interesting as well. Field days frequently end with a picnic supper, thereby introducing an enjoyable social atmosphere. Most field days are planned by District Agriculturists in co-operation with some local organization. Local groups which sponsor field days are serving their com-

munities in a very worth-while manner, and deserve support for their efforts.

Among the important field days was Farm and Home Week, held for the second consecutive year at the Olds School of Agriculture during the last week of June. Nearly 700 people attended the series of field days, and a number remained over for several days. The facilities at Olds are excellent for these gatherings. Beautiful grounds, good live stock, crops and ample classroom accommodation furnished ideal material for various types of meetings. A number of prominent speakers from outside the Province, members of the University staff, officers of the Dominion Department of Agriculture, the Alberta Department of Agriculture and others contributed to the programme.

Although lectures on live stock predominated, there were talks on many other subjects as well, and during three mornings, demonstrations in farm mechanics were given. A series of lectures for the ladies was also planned. These included foods, handicrafts and similar topics.

Farm engineering field days, to which reference is made elsewhere in this report, were held at 26 points this year. They were popular, well attended meetings, and many requests were made for a repetition. A field demonstration is the only method to show how proper adjustment reduces draft on farm implements, and it is the best method to measure slippage and other ways in which power is lost. Much of the popularity of these events was due to their practical aspect.

The horticultural field days to demonstrate farmstead planning, tree planting and orchard practices were again popular. Fourteen of these field days were held in 1940, and a very real interest was displayed in all phases of this subject.

Ploughing matches at South Edmonton, Okotoks and Wainwright were well attended. These events afforded an opportunity to demonstrate proper setting of ploughs and also how to make a proper "strike out".

At 27 field days a demonstrator was present to speak to the ladies while the men were in the field. This service appeared to be very acceptable, and the women seemed to enjoy the practical instructive demonstrations that were offered.

According to subject matter, field days may be grouped as follows: General, 9; Crop and Soil, 5; Dairy, 7; Horticulture, 14; Sheep and Swine, 7; Poultry, 9; Engineering, 26.

Attendance varied from about 15 to nearly 1,800, but the average was about 120.

Those responsible for conducting field days in the Province must co-ordinate their efforts in order to distribute this service as widely as possible. Those organizations responsible for field days notified this Branch of their plans, thus reducing the possibility of conflicting dates. This co-ordination is very much appreciated by the Extension Branch, and it is believed that co-operation of this kind is most desirable in all types of similar activities.

WOMEN'S EXTENSION

Women's extension work in Alberta falls into a number of divisions. These are as follows: demonstration, field days, short courses, fairs, correspondence courses, publications, radio talks and girls' work.

The objective of this work is better home living on the farm, and from the list of subjects provided this year it is obvious that there are many aspects of this aim. The work is not limited to cooking and sewing. The farm woman is interested in many phases of home-making, but she demands something that is practical for her home. It is the aim of this Branch to plan the work for the women actually on the farms. Women in towns and cities have so many more facilities for obtaining information that it seems desirable to suit the programme to the needs of the country women. This year 73 functions were classified as urban and 189 as rural demonstrations.

This year, 282 demonstrations were held as compared with 263 in 1939. Many of these were held in country farm homes, and the attendance was largely rural. Many topics were discussed in the demonstrations, and from letters reaching this office it is apparent that the services were appreciated.

This year the main theme was the "Production, Conservation and Use of Home Products," in keeping with Canada's war effort. The home demonstrators encouraged home canning, the use of more home produced meats, dairy and poultry products, and the repairing or utilization of old material in order to save the expense of purchasing new. A great deal can be done by suggesting new ideas for what is available.

The ground was covered this year by placing home demonstrators in certain districts, instead of having them travel all over the Province. This method has many very distinct advantages. Among these are the following: more demonstrations, more effective work, opportunity to visit homes, less expense in travelling, etc. Every demonstrator reported that this new system allowed much more efficient work to be done.

During the summer months field days are a popular event. For the past two years a lady has been provided for many of these functions to talk to the ladies while the men are busy with their own subjects. In 1940 speakers were furnished for 27 field days. This service has been highly appreciated.

During the early months of this year a home demonstrator was provided to speak to the ladies at 17 short courses. In the past, while the men attended the short courses, their wives waited around town. Last winter, however, at these short courses the women had their own programme.

Besides the actual judging at fairs, the home demonstrators often have an opportunity of speaking to the women present, giving them hints and suggestions about home-making or telling them of the facilities available in the Department of Agriculture for women's work. This year judges were furnished for 15 fairs.

Early in September plans were made for correspondence courses for the winter months. Applications were received from 250 groups, with a total membership of 4,411, for the four courses. To last year's courses in "Rug Making," "Foods, Health and Nutrition," and "How to Buy," was added a fourth, "New Furnishings for Old." The first lessons were mailed on December 1st and the remaining three lessons will be mailed on the first of each succeeding month until March. Some indication of the value of these courses may be obtained from the fact that out of the 250 women's groups participating in the programme this year, 160 are repeaters, having taken a course last year.

To meet the demand for information on many subjects, bulletins and mimeographed sheets are published from time to time. It is estimated that at least 5,000 copies of these publications have already been distributed. Bulletins on other subjects are required, but time and lack of help does not permit their being written.

Last winter members of the staff gave seven radio talks on home economics, and during the summer nine talks were given by the demonstrator in the Peace River district. These broadcast periods were provided without charge, for which the stations concerned are to be commended.

One of the most important phases of the programme is girls' work. Unfortunately, it is not possible to give adequate supervision to these groups, but through Women's Institute Girls' Clubs and other organizations some useful work is being done with the girls. This year an attempt has been made to provide material for girls' clubs programmes. Twenty-one girls' clubs enrolled for a course in "How to be Well Groomed and Well Dressed"; 25 groups are taking a sewing course, and 3 groups are taking "Foods and Their Preparation."

Earlier in the year supervision was provided for 5 Girls' Garden Clubs in the Eastern Irrigation District. These were sponsored by the Department of Agriculture and the Alberta Wheat Pool, and supervision was provided by the staff of the Provincial Horticultural Station. The experiment was most successful and received excellent support from the communities concerned. A great deal more could be done for the future home-makers of the Province, but it is necessary that adequate local leadership should be provided for every club, otherwise the programme is likely to fail.

More adequate means of transportation is needed. Too much valuable time is lost in getting from place to place. If a car were provided, each demonstrator could hold one meeting per day, and she would also be able to visit homes to give individual assistance. This year, 914 home visits were made, and the demonstrators report that the women enjoyed this help. Visits to the "backwoods" districts would also be possible. The most valuable work can be done in these areas.

The programme suffers from lack of equipment. Each of the demonstrators carries a small trunk, but more up-to-date equipment would be advantageous. In the modern farm homes, the latest utensils are used, and these women expect to see demonstrations conducted with the latest equipment.

The extension programme for rural women is limited by the supervision that can be given. More full time assistance is required to plan and carry through specific projects. It is most desirable that some form of leadership programme be evolved so that local women may act as leaders in special subjects, the Department providing assistance in the form of material and guides for suggestions for meetings.

Some figures concerning the 1940 programme are given here-with:

	1940	1939
1. Number of lecture-demonstrations given	282	263
2. Total attendance (estimated)	7,235	3,917
3. Average attendance	25.6	26.3
4. Short courses and field days attended	44	36
5. Judges for fairs	15	13
6. Girls' Camp supervisors	1	3
7. Girls' Clubs taking courses	49	
8. Applications for women's correspondence courses	250	244
9. Number of women enrolled	4,411	4,371

SCHOOL FAIRS

The school fair programme was reduced to 91 centres in 1940. A number of school fairs that were weak and lacked local support were discontinued. The policy of withdrawing support for the weak fairs strengthened the remainder, and the general tenor of the fairs this year was somewhat improved.

The fairs in the outlying districts continue to receive greater support from the communities than those in the older settled areas.

The administration of the fairs was carried on in the usual way from the Schools of Agriculture. Garden seeds were distributed to 1,146 rooms. The judging was done by five teams during September. A new School Fair Handbook was prepared in 1940, and the regulations were altered to allow only pupils 9 years of age or over to enter in the Agriculture and Home Economics classes.

A departure from the usual practice of visiting schools in May and June was adopted in the Vermilion territory this year. Instead of visiting individual schools, teachers adjacent to school fair centres were brought together in the evening for instruction and discussion on school fair matters. This practice was very satisfactory, and 20 fair centres were contacted in this way.

The usual School Fair Short Courses were held at Olds and Vermilion Schools of Agriculture, with attendance of 100 and 72 respectively.

The following is a summary of the school fair programme:

	Olds	Vermilion	Total
Number of fairs held	53	38	91
Number of rooms	699	447	1,146
Number of exhibits	46,121	32,842	78,963

AGRICULTURAL FAIRS

Despite the war, all except one of the agricultural fairs held in Alberta in 1939 functioned again in 1940.

The two Class "A" fairs at Calgary and Edmonton experienced satisfactory seasons, and five of the six "B" fairs operated as usual. Camrose, Lloydminster, Red Deer, Vegreville and Vermilion conducted fairs, but Lethbridge did not operate. Fourteen "C" fairs were held as compared with 13 in 1939. St. Paul resumed its fair activities after several years of inactivity. "C" fairs functioned at Alix, Benalto, Didsbury, Falher, Ft. Vermilion, Goose Creek, Lacombe, Lousana, Olds, Priddis-Millarville, St. Paul, Warspite, Westlock and Wildwood.

Cancellation of grants to "A" and "B" class fairs by the Dominion Department of Agriculture removed an important source of revenue. Grants from the Department of Agriculture were paid to "B" and "C" class fairs, while "A" fairs obtained the usual assistance for judges. To partially offset the loss of the Dominion judges grant, the Department of Agriculture furnished judges for the "B" circuit.

On the whole, the fairs were successful. Entries were down at nearly all of them, but they were well supported by good attendance.

The need for a long time fair policy is still present. A revision of the present method of making grants is required, and the question of locating new fairs within the Province at some later date requires careful consideration.

While some of the agricultural societies under which the "B" and "C" class fairs are conducted carry on other activities, as a general rule these societies are not doing as much as they could for their communities. One of their main objectives is to improve agriculture and rural life, but aside from the fair, their activities in this respect are of a minor nature. There is an unlimited field for a programme of this kind for which the agricultural society is admirably suited.

RELIEF SETTLEMENT PLAN

During the year 1940 the Advisory Board considered 136 applications for settlement, of which number 82 were approved, 16 deferred, and 38 rejected. Fifty-two families were settled on the land during the present year, and several others approved expect to complete land arrangements so that they may proceed to the land in the spring of 1941.

Placements during 1940 were from districts as follows: Cities, 27; Towns and Municipal Districts, 14; Unorganized Districts, 11.

The total number of families settled since the commencement of the plan is 1,078, and of this number 414, or 38.4%, have abandoned. Causes of abandonment are: Enlistments, 25; failures, 172; obtained other employment, 117; other causes, 100.

The Relief Settlement Plan offers to families on relief an opportunity for independence and a new outlook on life, and there are many who, given a little assistance and encouragement, are able to break away from reliance on public funds, and prove themselves an asset to the community. There is an increased tendency on the part of settlers to dispense with sustenance allowance as early as possible, in order that a greater portion of the amount available may be used for the purchase of stock and equipment.

REPORT OF THE DIRECTOR OF JUNIOR WORK

(W. J. ELLIOTT)

BOYS' AND GIRLS' CLUBS

For the third successive year, junior clubs have had what might be called a normal healthy growth. Grain clubs have increased from 105 to 116 in 1940 and live stock clubs from 62 to 67. The increase in clubs is reflected in an increase in members, which has risen from 3,084 in 1939 to 3,346 in 1940.

The following is a summary of the clubs and membership since 1937:

Kind	Number of Clubs				Membership			
	1937	1938	1939	1940	1937	1938	1939	1940
Swine	31	24	30	30	514	655	612	520
Beef	12	11	22	25	275	292	551	712
Dairy	2	10	10	12	35	205	258	274
	45	55	62	67	824	1152	1421	1506
Wheat	54	71	74	78	723	1385	1260	1417
Oats	17	15	23	18	336	240	286	256
Barley	9	8	7	8	135	124	98	121
Flax	2	1	1	2	36	10	9	33
Potatoes	2	2		1	38	23		13
	84	97	105	116	1268	1782	1663	1840

Grand total clubs—183

Grand total members—3,346

There are at least a dozen other points where clubs might be organized had we the force to care for them and give the instruction after they were organized. There seems to be no question of a doubt about the advantages of such clubs, for many a boy and girl has received their urge for better stock or grain through the club activities, and more and more are both boys and girls who have worked their way up through the grain or live stock clubs, finding their way to the Schools of Agriculture, with their appetites whetted with agricultural possibilities. Their desire is for more training.

We again emphasize the need for some form of training in club leadership for those who are graduating from our clubs. At the age of 21 they cease as club members, and at present there is little further training for them. In these boys and girls there is a trained force which, with coaching in club leadership, might enable us to go much further with grain and live stock club activities.

JUNIOR LIVE STOCK CLUBS

Beef Clubs.—Beef clubs show an increase of three over last year. Generally speaking, prices were more favourable this year than last year for the beef clubs. Top prices for a few animals ranged from 13 to 15 cents, with a few slightly over that figure. The average prices paid for the better class of the club offerings were between 8 and 11 cents, and the prices reflected the finish of the calves. Over 700 boys and girls finished calves this year, and training of this kind is worth while.

As was pointed out last year, the large number of beef clubs was causing some embarrassment, because it was becoming more difficult to attract buyers to so many points scattered over the Province. Many of the clubs held their fair, then immediately shipped their calves to some central market. In some cases a number of clubs arranged to hold a joint sale; in this way the larger number of animals offered, attracted a larger number of buyers.

This in no small measure accounted for the enhanced prices this year over last year. We intend to encourage this practice in future.

Dairy Clubs.—In our last report we mentioned the move to help dairy clubs by putting into the hands of the members, calves from excellent cows in the Edmonton, Calgary and other districts. At the time of our last report, 150 of these heifers were secured for club members. During the past season this work has been continued, and the following calves have been sent out:

Barrhead Dairy Club	25
Olds Dairy Club	35
Calmar District	10
Total	70

Thus a total of 220 calves have been sent out to dairy club members. There is still a call for 15 for a club at Vilna and another 15 for a club at Atmore.

All dairy clubs are encouraged to keep milk records of their home herd. As a matter of fact, little encouragement is given to dairy clubs that do not carry on this very important work.

Probably the largest dairy fair held this year was that at Lethbridge. Heretofore this calf show has been a part of the regular Lethbridge Agricultural Fair, but with the suspension of that organization the three clubs (Holstein, Ayrshire and Jersey) became part of the Provincial Dairy Club organization. The combined fair was held on July 16th and 17th, and attracted large crowds and much favourable comment.

Another very important item was the Dairy Club Field Day held on the farm of Mr. H. E. Elwell at Blackfalds. Over 150 dairy club members gathered for classes, some short addresses and a good time. The genial host and his good wife provided abundance of ice cream and chocolate milk. The club members pronounced it a grand day.

Swine Clubs.—The 30 swine clubs have continued to do good work. With the large quantities of dressed pork that Great Britain takes, this business continues to be one of Alberta's best paying farm industries. We believe that the swine clubs in this Province have played no small part in placing Alberta second only to Ontario as the largest hog producing province in the Dominion. The size of this rapidly growing industry may be shown in comparing the first 42 weeks of 1940, when Ontario marketed 1,400,000 hogs, while Alberta produced 923,000.

It is a noteworthy fact that hog quality improves in any district where swine clubs are organized, and people generally want better and still better breeding stock.

Provincial Club Contests.—Beginning the week of October 15th, the club leaders selected teams from among the 175 clubs for the semi-finals and finals in the Provincial Judging Contests. The semi-finals were run off in districts first, with the finals held at the University Farm on Saturday, October 19th. The winning teams were Gerald Loree and Frank Kinney of the Nanton Wheat Club; R. Boggs, Bottrel, and Vair Reed, Cremona, of the Cremona Beef Club; Jean Stewart, Duhamel, and Stan Gould of the Camrose Dairy Club; and Isabel Ferguson, Calmar, and Nora Fulcher, Leduc, of the Liberty Swine Club. It is interesting to note that these last two are the second team of girls to represent this club at the Dominion contests. Several years ago the two Ferguson cousins won the Dominion Championship.

Girls' Garden Clubs.—Last spring a new plan was tried in the organization of Girls' Garden Clubs in the irrigation district surrounding Brooks. These are an experiment on the part of the Department of Agriculture, and in carrying them out they had the assistance of the Alberta Wheat Pool.

Each girl conducted a home garden vegetable plot. They grew all the common vegetables, and the first question was with regard to properly laying out and handling such a plot, with a view to not only supplying the home with sufficient vegetables during the summer season, but also with a view to growing those suitable for canning and, of course, sufficient for storage.

The matter of canning was given special attention, and various methods were tried. As a special feature they selected six vegetables, and these in addition to the canning problem were studied not as peas, beans, carrots, etc., but as vegetables known to contain vitamins A, B, C, D, etc., and the problem was how best to retain their vitamin value for family use.

On August 2nd these club girls organized a huge field day on the Government's Horticultural Station at Brooks. Over 300 club members and their friends gathered for a tour of the orchards at the station, lectures, pictures and games with, of course, a most enjoyable picnic lunch and dance in the evening, to which the boys' clubs were invited.

There is little doubt but that these clubs will continue next year with even greater enthusiasm.

Agricultural Camps.—Due to the fact that the Dominion grant was discontinued this year, agricultural camps were officially discontinued. A few of the fairs, however, went ahead with the plan under local auspices. In the case of the Vermilion Agricultural Society, their camp was held in very creditable form.

Live Stock Clubs.—The number of live stock clubs held during 1940 was 67 as compared with 62 in 1939, while the enrollment increased from 1,421 in 1939 to 1,506 in 1940. The following is a list of the live stock clubs with their enrollment for 1940:

SWINE		
Edson	12	Donnelly
Falher	20	Lethbridge
Jarrow	14	Liberty
Pioneer	13	Poplar
Prosperity	12	Carnwood
Northern Valley	25	Pathfinder
Smoky Lake	21	Egremont
Spedden	18	Vilna
Bellis	18	Warspite
Coronation	16	Scales
Manfred-Bashaw	19	St. Lina
St. Paul	15	Taber
Radway	12	Neerlandia
Boyle	17	Colinton
Swalwell	14	Telfordville
BEEF FEEDING		
Lethbridge	22	Silver Heights
Vilna	28	Scollard
Simons Valley	25	Castor
Cardston	19	Stettler Erskine
Cremona	40	Lacombe
Grainger	12	High River
St. Lina	20	Balzac
Red Deer	41	Lake Thelma
Bellis	18	Byemoor
N. Edmonton	28	Coronation
Olds	31	Innisfail
Sundre	21	Nanton
Crossfield	18	
DAIRY CALF		
Eckville	24	Markerville
Scollard	40	Stettler
Camrose Ayrshire	17	Camrose Holstein
Smoky Lake	11	Didsbury
Springbank	10	Graminia
Olds	39	Vilna

DOMINION-PROVINCIAL YOUTH TRAINING PROJECTS

(W. J. ELLIOTT, *Supervisor*)

SCHEDULE "E"

It will be remembered that these projects are sponsored jointly by the Dominion and Provincial Governments.

For the first two years there was active interest on the part of unemployed youths in the Province for training along the various lines that were offered. The plan was to select certain phases of agriculture where these boys might be expected to gain experience, with a view to securing something permanent for themselves.

Since the beginning of the war the applications for these various courses have declined. This was to be expected, because large numbers were enlisting, and this in itself provided conditions so that there was less relief. During 1940, boys applying for work in these particular projects grew less, and after November 1st it was thought unwise to continue the placing of boys, simply because there were so few applications for positions.

At the present time there are only 37 trainees; 32 of these are on fur farms, 2 on poultry farms, and 3 in creameries. Four boys who have been working on apiaries have just finished their course.

There would seem to be no question of a doubt but that this Dominion-Provincial Plan has fulfilled a wonderful need and has served its purpose well. Up to January 2nd, 1940, we had handled 348 boys in the various projects and, in addition to this, had assisted 138 boys and girls to a course in the Schools of Agriculture. During the past year, up until November 1st, when the general projects were discontinued, we had handled an additional 110 trainees, and last Fall again assisted 28 students to attend the agricultural schools, so that up to November 1st we had handled in the general projects 458 and in the Schools of Agriculture a grand total of 166 students.

It is, of course, true that some of these boys did not measure up to our expectations, but we are pleased to state that the majority of the boys faced their problems in a creditable manner.

These projects were really started because of necessitous conditions, but as we have stated above, these conditions have changed completely in the last year, and there would appear to be little further need for assistance along these lines. We would make one suggestion, however, and that is that in the future rural students who are in necessitous circumstances due to drought, hail or other causes, should be assisted toward a course at the Schools of Agriculture.

That the project has served a splendid purpose may be evidenced by the following, taken from a letter written regarding a boy who had completed his course at the end of 1940. The trainer says this of the boy: "I am considering his training as finished. He got married and is working on his own in Loussard, Alberta, where he has started up. He received a bonus of 12 mink from me, bought himself some more, and has a fine start, with good Yukon mink. The boy was very thankful to the Dominion and Provincial

Governments for this training plan. He knows his work, and now has a permanent occupation."

Many letters received from trainers have attested to the worth of the boys, and to the fact that many have actually gotten a start for themselves.

During the late summer, Mr. Thompson of Ottawa suggested that we undertake 6 rural mechanical schools. These are to be handled under Schedule "E", and were particularly designed for farm boys. It is perhaps too early to state definitely regarding these six-week schools, except that they seem to have great promise.

The first two were held at Nanton and Stettler, and were both very considerably over-registered. The military draft cut down on the attendance somewhat, but the schools continued with 30 students at Nanton and 39 at Stettler. The second two schools to be conducted were started at Bassano and Viking on January 6th. These two schools are registered to capacity, with 34 at Bassano and 48 at Viking. The two final schools will be put on at Hanna and Provost, beginning February 17th.

The courses cover: (1) Motor Mechanics, (2) Blacksmithing, (3) Farm Machinery, (4) Carpentry.

A short time each day is taken up with a discussion of various farm problems, but the main effort is conducted along shop lines, and the repair of farm equipment is a main feature.

We are very much encouraged by the work thus far, and are satisfied that this is a project that will bear careful development.

REPORT OF THE DISTRICT AGRICULTURIST SERVICE

(J. R. SWEENEY, *Deputy Minister*)

This branch of the agricultural extension service is directed through the office of the Deputy Minister. It was commenced in this Province in 1917 with the establishment of two offices, similar work being done also from the three Schools of Agriculture that were operating at that time. Permanent district offices are now maintained at twelve points, and in addition, members of the staffs of the Schools of Agriculture at Olds and Vermilion act as agriculturists for the districts contiguous to the schools, also temporary district men were appointed for the summer and fall months to serve the area from Edmonton west and for the McLennan and Berwyn districts.

The necessity for constant and close contact between Departments of Agriculture and the farming public has been recognized for many years by Government authorities. This is the basic principle upon which the District Agriculturist service was founded. These district field men act as representatives of the Department of Agriculture amongst the rural people, assisting them with their many problems on the land and carrying to them the various Department policies designed to help the farmer personally and to improve the general standard of agricultural practices throughout the Province. They are technically trained men, but in order to meet the farmer on his own ground and to gain his confidence, it is of primary importance that they shall possess a broad knowledge of practical agriculture with its ever increasing quota of complicated problems.

The standard of work rendered by our District Agriculturists is effectively indicated by the constant demands on their time and energies and by repeated requests from other districts for a similar service. The average farmer of the present day realizes that he is quite dependent upon the scientific investigator and experimenter for solution of many of his difficulties. The day is long past when the technically trained agriculturist was looked upon with distrust by the man on the land.

The activities of the district service cover a very broad field and require that the district man shall be absent from his office a large portion of the time both summer and winter. The great variety of work that he is called upon to do is outlined in our report for the year 1939, and does not require repetition at this time. Each District Agriculturist has submitted a full report of the work in his district for the year just closed, and these reports are filed at this office.

Some points of particular interest gleaned from the reports might be mentioned as follows:

In most areas of the centre and north, and also in parts of the south, there is a growing tendency toward more diversified farming. The average farmer is gradually reducing his wheat acreage, increasing his production of feed grains and forage crops, and adding to his live stock, especially beef and dairy cattle and hogs. This would appear to be a healthy development of the farmers' programme toward meeting the present perplexing problem of over-production of wheat.

In the live stock field most districts report an abundance of winter feed with many farmers increasing their quota of feeder cattle and adding to their dairy herds. Hog raising continues to be a major pursuit with a further increase in sow holdings, and prospects of considerably greater swine production during 1941. Returns from hogs constitute an important part of the farmer's cash income. Through the Department's bull, boar and ram exchange policies, large numbers of good sires have been distributed in areas where they are needed most, especially in the more outlying districts of the northern half of the Province. The same is true of the co-operative stallion purchase plan. Though sheep raising has not been extensively followed except in the south, the small farm flock is rapidly gaining favour, and many farmers and settlers are acquiring a few sheep with good results. Losses of live stock from disease have been below normal in the past year. Though loss of young pigs has been high in some districts, improvement in methods of swine management and greater attention to sanitation have appreciably reduced the trouble. The campaign for control of the warble fly continues. The Red Deer district reports the organization of 30 communities and treatment of upwards of 25,000 head of cattle.

Farmers throughout the Province are realizing more and more the benefits derived from use of high quality seed grain. They are taking advantage of services offered by government and privately owned seed cleaners, and many secured supplies of certified and registered seed through the co-operative plan of the grain companies and the Alberta Seed Growers' Association. A notable item in seed grain production is the attention given to growing seed oats in the Grande Prairie district. Eleven carloads were shipped out through the Alberta Crop Improvement Association for seeding in the south, and total seed oat production for the area was 175,000 bushels. The influence of the junior grain clubs upon variety and quality of grains is very apparent in all districts. These clubs are supervised by the District Agriculturists.

Perhaps the most important cultural development of recent years in Alberta is the growing of forage crops, both legumes and grasses, for feed purposes, as soil builders and for weed control. Most of the municipal districts now participate in the provincial forage crop policy. In the grey wooded soils areas especially, the district men give much time to the promotion of forage crop work and to the use of fertilizers. The Thorsby office reports distribution of 9,000 lbs. of forage crop seed to 245 farmers and 15 tons of fertilizer to 171 farmers in four local improvement districts. This office also supervised 120 fertilized plots and 45 check plots, results of which recorded an average increase of 2,077 lbs. of hay per acre. The production of forage crop seed is also proving highly profitable, notably in the Westlock and Thorsby districts. Production of the latter area was upwards of 150,000 lbs.

Many of our district men report growing concern with respect to soil erosion and best cultural methods for handling of different soils under our varying conditions of climate. Strip farming methods and cover crops for control of soil drifting are now being adopted in some sections of central and northern Alberta as well as in the south.

It is gratifying to note that several of the District Agriculturists, in co-operation with the Provincial Horticultural Station at Brooks,

have made further demonstration plantings of orchards and small fruits on selected farms. Through these plantings farmers are beginning to realize the possibilities of fruit growing for home use when varieties suitable to the climate are grown and are properly cared for.

Control of weeds continues to be a major problem in most districts, especially in the irrigation areas of the south and in the older settled mixed farming districts. It is the intention of several of the field men to emphasize weed control at their short courses during the winter. Crop damage from insects was not abnormal during the year. Southern districts report the gradual spread of Say's grain bug and the wheat stem saw-fly, while in the area from Edmonton east to the boundary there is some evidence of damage to wheat by the Hessian fly, which may become more serious as time goes on.

In most districts much of the field man's time is devoted to organization and supervision of grain and live stock clubs. As a rule he finds these an excellent means of public contact. Besides having a direct influence upon agricultural practices in a district, they afford an opportunity to contact many adults who otherwise would not be reached. Club judging teams trained by the district men have taken their share of honours at the annual national contests. This fall a notable achievement was the winning of the National Swine Judging Contest at Toronto by the team representing the Liberty Swine Club, which comes under the supervision of our Thorsby office. This club has won the National Championship upon three separate occasions.

The district offices have been assisted as usual at certain meetings, field days and short courses by officers of the Dominion Department of Agriculture and staff members of the Provincial College of Agriculture. We are grateful for their help and co-operation in the interests of our district service.

Several changes in the personnel of the service have occurred during the past year. On May 1st, W. H. T. Mead was appointed to the Camrose office and J. E. Price was transferred to Berwyn. In the fall, F. H. Newcombe of Red Deer was granted leave of absence for military service, the vacancy being filled by the appointment of T. W. Hall. Peter Wyllie was transferred from the Thorsby office, taking over the position of Acting Sheep and Swine Promoter for the Province, and J. E. Birdsall was appointed to Thorsby. At the close of the year 1940, District Agriculturists are stationed as follows:

Lethbridge, R. J. Milligan; Brooks, M. L. Freng; Calgary, B. J. Whitbread; Olds (School of Agriculture), Hugh McPhail; Red Deer, T. W. Hall; Stettler, A. J. Charnetski; Thorsby, J. E. Birdsall; Camrose, W. H. T. Mead; Vermilion (School of Agriculture), west district N. N. Bentley, east district D. A. Andrew; Willingdon, F. Magera; Smoky Lake, W. N. Pidruchney; Westlock, E. G. Wood; McLennan, E. Hebert; Grande Prairie, W. S. Scarth.

REPORT OF THE OLDS SCHOOL OF AGRICULTURE

(JAMES MURRAY, *Principal*)

Following is a brief report of the work of the School of Agriculture, Olds, for the year 1940.

The spring term was brought to a close on April 4th after a very successful session. At the closing exercises, diplomas in Practical Agriculture were presented to 44 graduates and diplomas in Home Economics to 29. The prizes were presented by Mr. J. R. Sweeney, Deputy Minister of Agriculture, and the address to the graduating class was given most acceptably by Mr. D. E. Cameron, Librarian of the University of Alberta.

Of the students who graduated in Agriculture, 11 registered in September for a degree course in Agriculture at the University of Alberta.

SCHOLARSHIPS AND PRIZES

Following are the winners of the scholarships and principal prizes awarded during the term:

- Gold Medals, for general proficiency: Agriculture, Frank Allen, Penhold; Home Economics, Christina Rickard, Millet.
- Wheat Board Scholarships of \$100.00 each to graduates in Agriculture who enter the B.Sc. course in Agriculture at the University of Alberta: Fred Saltvold, Edburg; Bernard Bowlen, Carstairs; Wm. Main, Calgary; Elmer Erickson, Donalda; Tom Davidson, Alliance.
- Wheat Board Scholarships of \$75.00 to first year students standing highest in General Proficiency: Agriculture, Charles Andrews, Vulcan; Home Economics, Signe Blanche, Gwynne.
- Mr. A. L. Searle Scholarships of \$50.00 each awarded for progress in first year's work: Agriculture, Ray Anderson, Medicine Hat; Home Economics, Anna Carlstrom, Hay Lakes.
- Girls' Alumnae Scholarship of \$50.00 for the first year student in Home Economics who made the best use of her educational opportunities, at the same time making contributions to the literary, athletic and social life of the school: Lucille Carrels, Lucky Strike.
- O.S.A. Experimental Union Scholarship of \$50.00 for a student in Agriculture on the same basis as the one immediately above: Allan McFadden, Springdale.
- A prize of \$50.00 offered by the Alberta Women's Institutes to the graduating student in Home Economics who had the best record considering class work, character, deportment and her activities in athletic, social, literary and musical fields, was awarded to Gladys Peterson of Magrath.

The fall term opened this year on October 15th, slightly earlier than usual, with an enrolment of 168, made up as follows:

	Agriculture	Home Economics
First Year	54	33
Second Year	30	16
Two-in-One	21	14

We consider this a very satisfactory enrolment in view of the unsettled condition of affairs in the world at large and the difficulties in marketing farm products.

STAFF CHANGES

Mr. W. H. T. Mead, who has been instructor in Animal Husbandry for the past two years and Dean of the Men's Residence, having been appointed District Agriculturist at Camrose, his place has been filled by the appointment of J. E. Price, who has been in the employ of the Department for several years.

Miss Lilian Rogers, who had to resign on account of her health several years ago, is again with us as Dietitian and Dean of Women. Miss Lee has been transferred to Vermilion.

STUDENT HEALTH

Last year we were fortunate in getting through the school year with nothing more serious than chickenpox. This, however, was a great nuisance, as it stayed with us for several months. We had all the students who were susceptible to diphtheria and scarlet fever immunized. The same practice is being followed this year.

We had an outbreak of influenza in November of this year. With good nursing, we had no serious complications, and after two weeks the trouble was cleared up. As there were from 15 to 25 cases for a time, our inadequate facilities for coping with sickness were again made evident.

SUMMER SHORT COURSES

Farm and Home Week, held in the latter part of June, was well attended. The programme featured live stock, but some attention was given to field crops and to machinery. Several demonstrations were given with tractors, plows and cultivating machinery. These were very acceptably received.

The School of Community Life, under the direct management of the Department of Extension of the University of Alberta, held its fourth session here the first half of July. An excellent programme was provided. The regular enrolment was around 70, but at some sessions there were well over 100.

School Fair Short Course.—We had the usual short course of one week for scholarship winners from the school fairs of the previous fall. We had 54 girls and 42 boys in attendance. They spent a pleasant week attending lectures and demonstrations, as well as instruction and practice in games. They had a favourable introduction to the school to which in later years a number of them will come as regular students.

The Women's Institutes Girls' Clubs of the Province again selected this as a convenient place at which to hold their annual convention. About 80 young women attended. Our staff furnished part of the programme, taking classes in Home Economics and Horticulture.

Farm Women's Week continues to be popular. We had upwards of 100 registered—a number of them here for the second and third time, one for the seventh. No course given during the summer is more appreciated than this one especially provided for the women.

A *Farm Girls' Camp* was held at the time of the Olds Agricultural Society Fair. About 30 'teen-age girls from this part of the Province were given a much appreciated outing for two days.

SCHOOL FAIRS

The school fairs, to the number of 53 in the central and southern parts of the Province, were directed from here as in former years. Seed was distributed in the spring. Many of the schools were visited in May and early June to give first hand instruction in the preparation of exhibits. The fairs were held during September, staff members acting as judges. At the 53 fairs which were held, there were 46,121 exhibits, an average of 870 per fair. Harvesting

operations interfered with the attendance at some points, but there was an estimated attendance of 386 per fair.

GREY SOIL WORK

One member of our staff, Mr. C. E. Yauch, devoted considerable time during the season to the work in connection with grey wooded soils in the country west of Olds. He comes into contact with over 100 farmers on their own farms, and carries on experiments and demonstrations on between 20 and 30 farms.

Largely as the result of one set of demonstration plots of hay crops in the district, nearly two tons of grass and clover seed was distributed through the Dominion-Provincial Forage Crop Plan in L.I.D. 282 in the spring of 1940.

One farmer, who stated that he was at the end of his resources for stock feed, has increased his alfalfa acreage from 1 to 15 acres in four years. Now he states that he has more feed on his place than he has had for 25 years.

Another farmer, who intended to plow down his newly-seeded alfalfa on account of weeds, was persuaded to leave it, and the following summer cut over two and a half tons of hay per acre.

Problems studied, fall into three classes. Soil conservation includes protection from water and wind erosion and the maintenance of fertility. Under fertilizers, data is being gathered on the kinds, amounts, time and methods of application. The work with forage crops includes the following; the testing of kinds and varieties and mixtures, methods and rates of seeding, fertilizing, management, utilization, seed production, their relation to soil improvement.

The future of those districts with grey wooded soils is intimately bound up with the growing of hay and pasture crops, and the various demonstration plots are closely watched by those in the neighbourhood. Field days are well attended, and valuable discussions result.

EXPERIMENTAL UNION

The Experimental Union had an active year. We were able to offer to members a wide range of material from which to select. This included several varieties of potatoes, flax, several varieties of grass seed, beans, perennial flowers, vegetable seeds, flower seeds, plum seeds, butternut seeds, plum and apple seedlings, oak seedlings, a few named plums and apples, and a number of others. Nearly 300 members took advantage of the offer. Judging from the many reports received, excellent results were obtained by those receiving parcels.

FIELD DAYS, PICNICS

During the summer and fall months the school grounds are made use of by many organizations to hold picnics and field days. In many cases a programme is arranged to fill in part of the day. Many other field days are attended by members of the staff in this part of the Province served by the school. In this way they are brought into touch with many hundreds of rural people during the summer, people who are interested in selecting a suitable school for their families to attend. It is a very valuable point of contact.

FIELD HUSBANDRY

Among cereal varieties Eagle oats has given very good results for several years. It is slightly earlier than Victory, of good appearance, stands up particularly well and is an excellent yielder. It

will probably replace Victory and Banner to a certain extent in places where these varieties lodge unduly.

Thatcher wheat is more useful in this part of the Province than any of the other newer varieties. It is nearly as early as Garnet and yields well. It is not an attractive looking wheat, but grades as high as any others grown here. There appears to be no question about its milling quality.

We continue to make available a limited amount of seed of some of the grasses, seed of a quality suitable for those engaged in seed growing. These include Parkland Brome, Swallow Timothy, Olds Strain Creeping Red Fescue, and Fairway Crested Wheat Grass.

HORTICULTURE

It was an excellent fruit season here, and we had more varieties crab apples, apples and plums than ever before. A number of new varieties have been introduced during the year, some from the Horticultural Station at Brooks, a few from the Experimental Station at Morden, Manitoba, and a few from commercial nurseries. The orchards are a source of great interest to many visitors during the summer.

The display of flowers has never been better than it was during the summer until hail cut them down about the end of July. They not only serve to beautify the grounds, but show many visitors what can be done with flowers to add to the attractiveness of farmsteads.

REPORT OF THE VERMILION SCHOOL OF AGRICULTURE

(S. H. GANDIER, *Principal*)

Following is the report of the Vermilion School of Agriculture for the calendar year 1940.

Attendance for the 1939-40 term totalled 135 students. At the closing exercises on April 3rd diplomas were granted to 35 students in Home Economics and 38 in Agriculture. Since that date three diplomas in Home Economics and four in Agriculture have been issued to two-in-one students, who have completed their Grade XI standing since attending this school.

Enrolment figures for the regular school term, opening October 15th, show a continued decrease, which may be attributed to general war conditions and restricted wheat market. Total by classes follows:

Agricultural Courses:	
First Year Boys	38
Second Year Boys	18
Two-in-One Boys	13
Home Economics Courses:	
First Year Girls	18
Second Year Girls	13
Two-in-One Girls	10
Total	110

It might be noted that registration of first year boys is in advance of the previous term, there being 38 in this class as compared with 29 for 1939-40. All other classes are smaller. There is an increase also in the number attending from the Peace River district, due no doubt to better crops in those northern areas.

The training of a number of students under the Dominion-Provincial Youth Training Plan has been continued. Six girls and eight boys are included in the registration quoted above.

Last winter's term was a record for freedom from sickness amongst the students. No epidemics of any nature were experienced, neither was there a case of any serious illness. One case of mumps developed following the Christmas vacation, but prompt isolation prevented further spread. In the fall of 1939 precautions were taken against an outbreak of scarlet fever by having students and staff submit to the Dick test, all reactors being inoculated. This may have prevented recurrence of the previous term's trouble with this disease. During the current fall term the school had about 50 cases of influenza which was of a comparatively mild type.

SCHOLARSHIPS, MEDALS, PRIZES

The more important scholarships and prizes awarded at the April closing are listed below:

Wheat Board Surplus Trust Fund Scholarships: \$75.00 scholarships to the first year girl and boy standing highest in general proficiency (toward expenses of the second year)—Winners: Mary Hawrelak, Wasel; Arthur McGinnis, Westlock.

Five scholarships of \$100.00 each to boys of the second year and two-in-one classes (toward expenses of the first year in Agriculture at the University)—Winners: W. C. Andrews, Bremner; J. M. Bell, Islay; R. H. G. Cameron, Wanham; F. H. Clark, Bruce; J. Kastelic, Sangudo.

Alberta Women's Institutes Scholarship of \$50.00 to the first year girl attaining highest standing in the practical subjects of the Home Economics course—Winner: Lillian Algot, Derwent.

Vermilion Board of Trade Scholarship of \$25.00 to the first year boy with highest standing in practical subjects—Winner: Carl Luger, Entrance.

The Robert Simpson Co. Prizes for highest standing in general proficiency in the second year—Winners: Marguerite Slemp, Fleet; George Currey, Vermilion.

Staff Medals, awarded to the girl and boy of the second year, for all-round work in study and in student activities and leadership—Winners: Dorothy Lowe, Vegreville; James Thirsk, Kelsey.

In addition to the above, donations of prizes from the following are gratefully acknowledged: The T. Eaton Co., Edmonton; The Singer Sewing Machine Co., Winnipeg; Sommerville Hardware Co., Edmonton; McCall Publishing Co., Toronto; Wabasso Cotton Co.; Boys' Shop, Edmonton; Vermilion Firms: Craig Bros., Stephens Ltd., Northern Hardware, Nelson-Hill Hardware, Vermilion Dairy, M. Wener & Son, Brass and Davies, Bailey Meat Market, Long's Drug Store, Wiebe's Flour Mill, Wener's Bakery.

STAFF CHANGES

It is with regret that we report the loss of a number of instructors during the year, most of whom had been on the staff for some time and had contributed much to the general welfare of the institution.

Miss M. E. Storey, Dean of Women and Dietitian (resigned to enter business); Miss M. P. Shaw, Sewing Instructress (leave of absence, ill-health); Miss V. D. Richards, Junior Instructor in Cooking (transferred to Department of Agriculture, Edmonton); E. W. Cormack, Dean of Men and Instructor in Animal Husbandry and Harness-making (on Military Service); D. McCauley, Instructor in Metal Work (on Military Service); J. E. Rattray, V.S., Instructor in Veterinary Science (with Dominion Live Stock Branch, Edmonton).

New appointments as follows were made previous to the opening of the term in October: Miss L. M. I. Milne, formerly Senior Instructress in Cooking, appointed Dean of Women and Dietitian; Miss I. Dawe, a graduate of Macdonald Institute, Guelph, Instructress in Sewing; Miss Eva M. Lee, transferred from Olds, as Senior Cooking Instructress; Miss L. Ferbey, a graduate in Home Economics from University of Alberta, Junior Instructress in Cooking; Miss K. Young, R.N., a V.S.A. graduate of 1935, Instructress in Home Nursing; H. Armstrong, transferred from the Demonstration Farm staff as Instructor in Metal Work.

Certain re-arrangements have affected the work of several of the men on the staff. As the student body at present is somewhat reduced in number, it was decided that a new appointment would not be made to replace Mr. Cormack. Duties of Dean of Residence and instruction in harness repair were taken over by L. Blades. With the appointment of C. Ogston a V.S.A. graduate of 1931, as Farm Manager, D. A. Andrew was released to give his full time during the term to instruction in Animal Husbandry and Farm Management. The instruction in Veterinary Science was also added to his duties.

SPRING AND SUMMER ACTIVITIES

The permanent staff was engaged as usual in a variety of school and extension services throughout the spring, summer and early fall. Two of the Home Economics staff did several months work with the Women's Bureau, Miss Milne being stationed at Vermilion. Valuable contacts were made with many women's organizations throughout the district, and her efforts in their behalf were much appreciated. The time of the Agronomist was devoted to the school plots and gardens, to plot tests with soils and fertilizers at a number of outside points, and to assisting with many field days and agricultural meetings throughout the district. The Mechanics Instructor was placed on a special Provincial programme of farm mechanics demonstrations under the Extension Branch of the Department. The Science Instructor resumed his summer duties as district agent for the area west of Vermilion, and supervised the preparation of legume cultures, while the Principal and the Animal Husbandman were responsible for the district work in the eastern area. (Special report of the District Agriculturists' work is submitted herewith.) Since a new farm manager was appointed October 1st, Mr. Andrew is now available for full-time district work. Supervision and organization of school fairs was carried on by the Instructor in English and Mathematics, who also supervised preparation of the Department exhibits at the Calgary and Edmonton Exhibitions. Mr. Blades was employed in bee inspection work with the Apiculture Branch. In his spare time the bookkeeper assisted with the production of legume cultures. Several of the staff spent the month of September on the school fair circuits.

Summer sessions were held as usual during July. The annual summer re-union of ex-students was held July 9th and 10th with approximately 100 in attendance in spite of bad road conditions. This was followed by Farm Women's Week, July 11th to 16th. There were 48 registered for this course, which was considerably below that of the year previous, presumably due to the general uncertainties of war-time. The one week short course for school fair boys and girls who attained highest honours at the fairs in 1939 was held July 21st to 27th, with 30 boys and 42 girls in attendance. Winners of the Wheat Board Scholarships of \$75.00 toward expenses of the regular course at the School of Agriculture, were Steve Fustey, Wasel, and Mildred Miller, Campsie. The annual Boys' and Girls' Camp, sponsored by the Vermilion Exhibition, was provided with the usual dormitory accommodation and classes of instruction during the Vermilion Fair, August 1st to 3rd. These boys and girls, who come from the districts tributary to the local fair, totalled 96. The Vermilion Exhibition Board is to be commended for continuance of this camp despite cancellation of the grant for this purpose by the Dominion Department of Agriculture.

In addition to the regular schedule of short courses, the usual number of field days and meetings were held at the school during the summer months. A combined field day for breeders of Aberdeen-Angus cattle and Clydesdale horses, and sponsored by the Provincial associations for these breeds, was held on July 3rd with quite encouraging results. A feature of the summer programme of grain clubs within motoring distance of Vermilion was a series of four field days at the school with several clubs attending each day. This was arranged with the co-operation of the Willingdon and St. Paul offices. One club from the Cold Lake district made

a two-day trip of it, bringing their bedding and food with them and camping in the school gymnasium. Other meetings of note were: Conference of Line Company Elevator Agents on July 23rd; Crop Testing Plan Day, August 13th; picnic of Deaf and Dum Association, August 14th. The Vermilion, Vegreville and Wainwright School Divisions held their combined annual convention in the school gymnasium October 9th to 11th, the school providing room and board for 150 delegates.

LEGUME CULTURES

Cultures for the inoculation of the seed of legume crops were again prepared at the school laboratory for distribution to farmers throughout the Province. The large proportion of these are for alfalfa and sweet clover, and the major portion of production is for use with seed supplied through the Provincial Forage Crops Policy. Demand this year was considerably less than for the 1939 season, there being 3,317 cultures distributed, whereas in the previous year over 5,000 were sent out. Decline in demand may be due to the fact that all seed houses and mail order department stores now stock the modern dry type of culture, which is more conveniently applied than the gelatine type.

THE APIARY

The school apiary is maintained to determine the honey producing possibilities of the district and for demonstration to local beekeepers. In the fall of 1939, 45 colonies were packed for winter. Of these, 25 were nuclei made the previous July. Nine of the nuclei succumbed during the winter and two of the 20 colonies were lost. Four packages were placed May 1st. This fall 30 colonies were placed in winter quarters, all in outside wintering cases. No artificial feeding was done. The package colony placed on scale for the honey flow period made a gain of 218 lbs. up to September 1st.

THE SCHOOL BUILDINGS

During the depression years funds were not available to keep all of the school buildings in a first class state of repair and to make necessary additions in the way of buildings and equipment. As a consequence, a considerable sum could now be spent to advantage for such work as painting, stuccoing, interior alterations and repairs, cement walks, and for certain new buildings, including a seed house, garage, root house, greenhouse and enlarged space for mechanics courses. A report concerning buildings was forwarded to the Department early in December.

EXPERIMENTAL PLOTS AND HORTICULTURE

Cereal Crops.—The school policy has not been to produce élite, registered or certified seed, but rather to test the newer varieties and to carry out a breeding programme with the hope of obtaining varieties more suitable to the district.

Early wheat trials in co-operation with the Dominion Department of Agriculture, Ottawa, were again carried out during the year; also late seedings of rust resistant and other varieties yielded interesting data.

In all trials, Red Bobs wheat has out-yielded all licensed varieties under test, and also in late seedings graded higher than other varieties.

Several thousand plants and rows, the progeny of Thatcher, Reward and Red Bob crosses, were grown and examined in 1940. The promising lines will be continued in 1941.

Breeding work with oats has not been attempted; however, several high yielding smut resistant strains from Aberdeen Idaho are under test.

The varietal trials have supplied interesting data on varieties. Erban appears to have the greatest promise for a variety several days earlier than Victory or Banner.

Our barley trials have included many smooth awned varieties. It is noticeable that all varieties with smooth awns are susceptible to loose smut. The variety Prospect gave a good account of itself because of its earliness. There should, however, be additional tests to substantiate its 1940 behaviour.

Forage Crops.—Alfalfa and Brome grass in mixtures still holds the favoured position as a general farm forage crop. Our varietal trials with alfalfa include 24 varieties from the U.S.D.A. Among these a few selections show promise, but it will be difficult for them to replace Grimm in any area free from the disease bacterial wilt. Our breeding programme with Red Fescue has as yet consisted of discarding undesirable types from in-bred selected strains. It is our intention to re-combine the desirable types into a new strain when a sufficient number of these have been obtained.

Fertilizer Trials.—Several grades of commercial fertilizer were applied at various rates to wheat and barley crops on experimental plots at the school and on farmers' fields in the Vermilion area. Results from these trials have been variable. In the Elk Point district, fertilizers on late barley showed little response, while on early wheat at Wainwright results were most noticeable.

Horticultural Material.—Numerous new crab apple, apple and plum trees have been added to our orchard for testing purposes. In 1940 many small trees bore some fruit, while other crab apple trees produced abundantly. There has been comparatively little winter killing during the past few years in our orchard; however, it has been necessary to provide protection from rabbits by the use of wire netting or building paper.

In Raspberries, the variety Chief still is outstanding in that it is hardy, yields well, and produces berries of excellent flavour. The variety Newburgh is showing promise in that it produces exceptionally large firm berries, but to some the flavour is a disadvantage to the variety.

School Fairs.—School fairs were held at 38 points in the district served by the Vermilion School. This represented a decrease of four as compared with 1939, fairs at Vermilion, Camrose, Ashmont and Kinuso being discontinued on recommendation of the judges.

The number of schools taking part was greater this year as a result of closer co-operation on the part of the Divisional Boards. Seeds were distributed to 7,637 pupils in 447 rooms. Exhibits at all points totalled 32,842, or an average of 864 exhibits per centre. This latter figure represents an increase of approximately 22% over 1939.

Generally speaking, the fairs were more successful than for some time past. Several factors undoubtedly contributed to this improvement. By way of experiment, meetings of teachers and parents were held during the month of May at 20 different centres.

These meetings, which were well attended, provided a valuable contact for our representative and the school inspector. The various classes in the prize list were discussed thoroughly, exhibits were displayed, and suggestions were made for the betterment of the fair.

A second factor which resulted in better work was the appearance early in the year of a completely revised handbook. The book met with the approval of all school fair committees, many of whom commented favourably upon the changes in the prize list and the more explicit directions given. If the school fair work is to be successfully continued, however, it is important that a slightly larger number of handbooks be available for distribution.

Undoubtedly the school fair programme serves a very useful purpose in reaching young people in the outlying districts of our territory, where it continues to receive the fullest support.

REPORT OF THE PROVINCIAL FARM, OLDS
(WALTER ROSS, *Manager*)

CROPS

The spring of 1940 was considerably later than the average spring for this part of the country, but it turned out to be a pretty fair crop year. Our hay crop was good and put up in excellent condition. The grain crops all average about the same as last year. The oats on summer fallow threshed out 100 bushels per acre. Barley on spring ploughing yielded 60 bushels per acre.

The pasture was very good for the first part of the season, but with our large amount of stock, we were very short of pasture before fall.

Our threshing being done in fairly good time, gave us a chance to pasture our stubble fields for a while. The home farm received a considerable amount of hail during July, but the south farm escaped the hail, the crop there turning out very good.

We have about 100 acres in summer fallow on the home place, which leaves the farm in good shape for the coming spring. We have about 65 acres brushed on the south farm which will be ready to break next summer.

With the leasing of the McKercher place, we had a lot of extra work to do. The place was badly hailed last summer; 700 bushels of wheat was all that was threshed. We filled a silo from a field of late oats, the balance being used for green feed. This was all good feed. We put up about 50 acres of hailed grain for hay, but it is of very poor quality.

LIVE STOCK

There were 22 head of Aberdeen Angus cattle shipped here from Vermilion. They are kept on the McKercher farm. We have built straw sheds for them, and they are wintering very well.

The Shorthorns and Ayrshires on the home farm are all doing well.

We still maintain a small flock of Hampshire sheep. They are wintering very well.

We have increased the number of hogs considerably since last year. There has been a steady demand for boars and gilts.

The Percheron horses are all looking fine. We had the stallion Chief Laet here last season on the same conditions as formerly. Everything worked out all right, but we were very short of pasture for the mares that were sent in. The two mares bought from Mitchell and Reith make a very good addition to our Percherons.

The demand for pure-bred live stock has been exceptionally good throughout 1940, and our sales have been very satisfactory, the two biggest being \$800.00 for a three-year-old stallion and \$800.00 for our Shorthorn bull that was shipped to the U.S.A.

The field days that were held in the latter days of June turned out to be quite successful, although we would have liked to see more people attend. I am sure those who attended derived much benefit from these field days. The breeders all seemed favourably impressed with the improvement of our live stock. I am confident that we can further improve from year to year.

REPORT OF PROVINCIAL FARM, VERMILION

(G. A. OGSTON, *Manager*)

The area of land operated was approximately 1,200 acres, 320 of which were rented from Mr. Scott. During the season, about 82 acres of land were cleared, broken and made ready for cropping.

In operating the farm, three main objects were kept in mind; first, to demonstrate forage crops; second, to rear pure-bred live stock, some of which was to be sold to farmers and breeders throughout the Province; third, to provide feed for the stock.

All the large plot areas laid down in previous years were continued. Last year we reported the success of sweet clover on the farm, but this year sweet clover under the same conditions had to be plowed up on the 1st of June and planted to barley. All the new grass seedings, 79 acres in all, commenced the winter in good condition. During the season 115 acres were summer fallowed. In pastures, Kentucky Blue Grass, Creeping Fescue, Crested Wheat and Brome are all giving good results. The first three named have given the best results under local conditions.

GRAIN CROPS

Approximately 5,821 bushels of oats were threshed from 121 acres; 2,015 bushels of barley from 50 acres. No wheat or flax was grown. Seventy-two acres of oats supplied the greenfeed and ensilage, yielding almost two tons per acre. Seven acres of sun-flowers yielded approximately eight tons per acre.

HORSES

At present there are 28 head of horses, 26 of which are Clydes, either registered or eligible for registration. Six foals were raised during the year, and 10 mares are in foal to our stallion, Craigie Winsome Lad.

CATTLE

There are 29 head of Shorthorns in the herd, headed by Shirley Mariner, a bull with Balmuchy and Browndale breeding. During the season, five bulls were sold and eight females were received from the Olds Demonstration Farm.

The main Angus herd, including the bull Bandolier's New Deal, was transferred to Olds Demonstration Farm, leaving us with 11 head. A promising yearling by Bandolier's New Deal is now the herd sire. In the past year five bulls were sold.

During the latter part of October the Holstein herd of 20 head was transferred from Brooks Demonstration Farm. Since that time four calves, one male and three females, have been dropped, thus bringing the herd to 24 at the present time. The herd sire, Strathmore Lucius Sir Heilo, has been leaving very uniform and promising calves.

HOGS

The Yorkshire herd has been substantially increased, numbering at present 150. There are three herd boars to which many farmers brings sows for service. Four sows were entered in advanced registry, their test pigs still being at the feeding station. In the

past year, 20 boars and 23 gilts were sold as pure-bred breeding stock.

SHEEP

The flock consists of 18 Suffolk ewes and five ewe lambs, headed by a University bred ram. Last year 23 lambs were dropped, 21 of which were raised; 10 males and 11 females. Eight rams and nine ewes were sold during the season.

POULTRY

No attempt was made towards the production of hatching eggs or raising young chicks. The flock, numbering about 160, is maintained to provide class-room material and to supply eggs for use in the dormitory. Two breeds are kept, Rhode Island Reds and White Leghorns.

MACHINERY

The purchase of a new 10 ft. power binder and a rubber-tired wagon added greatly to our equipment. The line of farm machinery would be fairly complete with the addition of a new tractor press seed drill.

REPORT OF THE PROVINCIAL HORTICULTURAL STATION, BROOKS

(P. D. HARGRAVE, *Assistant Superintendent*)

Trial and selection of new introductions and the selection of new varieties is a long process in horticultural crop improvement. Some of the first blocks of seedlings planted at this station have, during the past season, been removed to make room for a succeeding generation. Constant progress is being made, and each time an area is replanted another stone has been turned on the path to better prairie fruit. The greater part of the work at the station has this past year been directed towards establishing new fruit plantings, the development of new shelter-belts, extension, and the improvement of the grounds. Every effort has been made to accomplish the work with a minimum of labour.

CLIMATE

The past year has been mild and moist. Extended periods of warm weather during the first months of 1940 were experienced, but no severe weather followed. Double the average precipitation was received, the most of which fell in April, July and September. Due largely to the late fall, the growing period (180 days) was the longest on record.

Frosts limiting the growing season occurred on April 17th and October 14th. The lowest temperature, -32°F. , occurred in January and the highest, 96°F. , in August. The spring was cold and growing weather late, and the fall, although long, was wet. The yearly records follow:

TEMPERATURE RECORD FOR THE YEAR 1940

Month	Temperature					Precip.
	Ave	Max.	Ave. Min.	Max.	Min	
January	14.0	—	5.1	45	—32	.06
February	18.1		2.8	39	—24	1.78
March	34.0		15.0	54	—10	1.70
April	44.0		25.2	65	—12	2.97
May	70.6		41.6	87	33	.87
June	75.4		47.2	87	39	.78
July	79.4		53.8	91	47	4.74
August	83.4		48.0	96	42	.19
September	72.6		45.5	88	37	2.30
October	59.0		33.7	77	24	1.84
November	23.2		7.3	48	—22	.67
December	32.1		15.1	52	—16	.08
						17.98

GROWING SEASON

Although many ornamentals showed signs of growth during mild winter weather, there was very little winter damage. Grapes suffered severely as a result of the sudden cold snap of October, 1939. A light crop resulted. Blossom season was late, with the earliest plums blooming on May 16th. The blossom period of 1939 was three weeks earlier. During the past bloom there was very little difference between the early and late blooming varieties. This was possibly due to the late season and the short duration of the blooming season. Little outside controlled crossing resulted.

The first irrigating was done early. Double the average precipitation modified the regular irrigation practice. Trees received

one irrigation instead of the usual three. Owing to the abundance of fall moisture, no fall irrigating was done. This is usually the most important irrigation the trees receive, as it allows them to enter the winter with an abundant moisture reserve.

Notwithstanding the lateness of the season, fruit ripened early. The late fall rains prevented the ripening of late wood growth on many varieties of trees, some of which went into the severe November weather holding their leaves. There is a possibility of winter injury as a result.

The fruit crop was lighter by 10 tons than that of 1939 with about 21 tons being picked for market. Many new introductions to the station trial grounds fruited for the first time. Fortunately, because of the lighter set, the fruit was larger and of much better quality. A large percentage of this fruit is marketed to the farmers in the surrounding districts, who use it in large quantities during the harvest season. The past season is the first in which there has been a marked discrimination against the smaller types of fruit. We shall always have a percentage of this fruit to dispose of from our seedling blocks. The fruit season reached its peak on September 3rd. Cherries were ripe on July 5th and Sivia crab was picked on August 10th.

PLANTING

Ninety-eight new varieties were added to the station list. They included apples, crab apples, plums, cherries, pears, grapes, raspberries, hickories, heartnuts and ornamentals. Seed of 83 species were received for planting, and seed of 35 commercial apple varieties was germinated. These seedlings, if not winter killed, will be grown to maturity.

An additional 24 varieties of apples and crab apples were planted in the new test orchard. This brings the total to 511 varieties of apples and crab apples in the one orchard planting. Many of the trees in this test orchard will fruit next year for the first time and some will likely suffer winter injury due to late fall growth. New seedling blocks were set out in so far as prepared land permitted. They included: 1,086 apple seedlings, 368 plums, 278 cherries and 79 pears. Land has been prepared for planting additional stock next year, and about 7,400 seedlings are now dug and heeled-in ready for planting. There will be another 8,000 or 9,000 available if the land can be prepared in time.

A heavy seed planting programme was undertaken, and good germination resulted. The seedlings obtained, included material for growing to maturity and for propagating.

There are now 33 numbered station selections, one of which has been named. These are being tested at many places in the Province, and are being propagated for further test.

Budding season was started earlier than usual with the hope that some of the difficulties in plum and cherry propagation might be overcome. The buds of the previous season gave a good stand of whips which were smaller than usual, due in part to the late spring. Grafting, done with spring cut scions, proved much more successful than grafting done with all cut scions. This was due to bud injury during storage rather than wood damage. Fall cut scions are usually more vigorous, and a practice of using spring cut wood is not advisable.

SEED AND TEST PLOTS

More effort was given to seed production during the past season. A good harvest of beans was somewhat damaged by wet weather. Onion seed, corn, Kentucky blue grass and Bison tomato seed were harvested.

The station has been asked to maintain an elite stock of Bison tomato seed. With this in mind, a small block, containing about 1,240 plants, was set out. This block was carefully rouged, the seed harvested and prepared for market.

A high germination was obtained in the seed beds from stratified seed stocks. Where checks of unstratified seed (seed sown the previous fall) were used, the improvement in germination was outstanding. This was particularly noticeable with plums.

Tests were carried out with tomato, beet and potato varieties for yield and quality. The gladioli plot attracted a great deal of attention, particularly that of visitors from dry land farms.

EXTENSION

In addition to the regular extension work, the station staff assisted in the organization of five Junior Garden Clubs, and in the development of a programme and lectures to be carried out during the season. Supervision was extended to 31 of these club meetings. A separate report on this club work has been forwarded to the Director of Agricultural Extension.

During the summer, nine organized field days were held on the grounds of the Horticultural Station. Many informal groups used the picnic grounds and were shown around the orchards, particularly during the fruit season. At that time visitors come from all parts of this and adjoining provinces to see the work being carried on with fruits and vegetables. Assistance was given to 15 field days and 12 winter meetings in other parts of the Province.

A coloured picture of the work at the station was prepared for the Extension Service.

The joint field day of the Junior Grain Clubs and the Junior Girls' Clubs was the most successful of the season. Grain clubs from Hilda, Schuler, Jenner, Gleichen, Milo, Hussar, Rainier, Scandia and Brooks joined the girls' clubs from Bowslope Gem, Tilley, Duchess and Brooks for a day of lectures, tours and picnicking on the station grounds. These young people, training themselves as best they can, absorb a great deal and are given inspiration to try many of the ideas they see being carried out successfully.

Eight new test orchards were planted, and planting days were organized at each place. This brings the number of trial plantings spread over the Province to 22. Farmstead plans were developed in ten localities. Ninety-two shipments were sent to various points in the Province. About 10,000 spruce seedlings were distributed and poplar and willow cuttings were made available to the districts adjoining the station. Large educational exhibits were taken to the Calgary and Edmonton Horticultural Shows, and assistance was given to smaller horticultural groups in the way of prizes and premiums.

CONCLUSION

The testing, developing and propagating of prairie fruits has been carried through another season. The information, learned from experience, has been passed on through our extension work.

Most of the work of the station is with fruit and ornamental trees. Very little is being done with vegetables and ornamental flowers. The possibilities present in the developing of disease resistant strains of vegetables suitable to the short, hot summers of this Province are great. It is hoped that in the future facilities will allow problems of this type to be undertaken.

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Date Due

OCT 12 '87	Due Cam JUN 17 1992	
APR 30 '83	Due Cam AUG 11 1992	
APR 29 RETURN	AUG 24 1992	
MAY 31 1990	OCT 14 1992	
Due Cam JUL 09 1990	RETURN NOV 02 '00	
JUL 10 RETURN		
DUE CAM AUG 21 '90		
DUE CAM OCT 02 '90		
SEP 19 RETURN		
Due Cam AUG 14 1991		
Due Cam OCT 04 1991		
SEP 25 RETURN		
Due Cam OCT 09 1991		
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